Attachment B
VPDES Permit No. VA0004146
Dominion – Chesterfield Power Station
Response to Comments

Introduction
This document serves as staff's response to comments document for those comments received during the public comment period associated with this permitting action.

Staff reviewed all comments submitted during the public comment period. A summary of the comments received along with responses prepared by staff are found within this response to comments document. Where possible, comments were summarized according to issue.

All comments received in response to this permitting action are available upon request.

Elected Official Comments

Senator Amanda Chase (11th Senatorial District) submitted an e-mail during the comment period, in which she expressed her concern that the draft permit has the potential to impact her constituency as well as resources that are important to all Virginians, including the James River and Henricus Historical Park. She requested that the information provided by those individuals and organizations that have concerns about water quality standards, be thoroughly reviewed and considered during this permitting process, and that the agency also take into account the needs of the citizens for reliable, cost-effective power, which will affect their overall well-being.

Staff Response: The comments submitted to DEQ during the comment period have been reviewed and the agency response to those comments, including the concerns raised in Sen. Chase's e-mail, comprises the remainder of this document.

Public Comments

Many of the comments expressed in opposition to this proposed permit action (including the entire substance of "Form Letter 1") were premised on objections to the proposed conversion of the Lower and Upper Ash Ponds to solid waste storage facilities. This proposed conversion would be regulated under independent permit actions that are being developed by DEQ's Land Protection and Revitalization Division; as such, the objections described above are not relevant to this draft permit. However, regardless of the method of closure, the ash ponds would have to be dewatered and the proposed VPDES permit would remain as is.

Other commenters objected to the draft permit on the bases of sea level rise or greenhouse gas emissions from the plant; as the VPDES Permit Regulation does not regulate these, the draft permit has not been modified in response to these comments, per the staff responses in this document.

The remaining comments were grouped and summarized according to issue where possible below.

1. ***Coal Ash Pond Closure – Dig up and remove the ash, owing to groundwater concerns or the flooding risk associated with storm surges or sea level rise (Southern Environmental Law Center (SELC), James River Association (JRA), Hands Across the Lake (HAL), Henricopolis Soil and Water Conservation District (SWCD), Form Letter 1, Suzanne Keller, Carolyn Crighton, Evie Scott, Bill Johnson, Annique Dunning,***

Frances Broaddus-Crutchfield, Glenn Besa, Tyla Matteson, Herb Walke, Peter Martin, Graham Jennings)

Staff Response:
Closure of these impoundments is governed by and addressed by the 2015 EPA Final Rule on the Disposal of Coal Combustion Residuals. Closure, including the method of closure, will be addressed in a future solid waste permitting action, which will include additional groundwater monitoring, surface water monitoring, and corrective action as necessary. Regardless of the method of closure, it would still be necessary to decant and dewater the ash ponds, and it would still be necessary to develop, install and operate treatment systems to replace the functions currently performed by the Lower Ash Pond; therefore, the draft permit would remain essentially as is.

2. ***DEQ has ignored available technology that can significantly reduce pollutant concentrations in wastewater at the Chesterfield Power Station (SELC, JRA, Form Letter 2, Jamie Brunkow, Jonathan Gendzier, Sierra Club, VCN, Henricopolis SWCD, Chris French).***
    - *The Clean Water Act requires technology-based effluent limitations as the minimum level of control required by pollution discharge permits.*
        - *Federal effluent limitations are inapplicable when they do not include requirements for "pollutants of concern" or when the facility does not "perform the industrial operation triggering" the limitations*
        - *DEQ must set technology-based limits on a case-by-case basis where Federal Effluent Limitations are inapplicable to the wastewater streams and contaminants at the CPS*
            - *Dewatering a coal ash impoundment in preparation for closure is an aspect of the pond's operation that is not contemplated by the effluent limitations for legacy coal ash ponds promulgated by EPA.*
            - *State WQS provide a "supplementary basis" but are not an adequate substitution for technology-based effluent limitations.*
    - *Dominion should be required to meet state public health standards even though it does not discharge into waters designated as a public water supply.*
    - *Outfall 101 should be considered a combined wastestream as the Lower Ash Pond currently receives multiple wastestreams; rather than the "standard" 100 mg/L for TSS, a limit should be calculated.*
    - *An advanced wastewater treatment plant can effectively treat the wastewater from the Upper and Lower Ash Ponds*
        - *Approval of the draft permit should remain pending until the CER for the CSWTS is submitted/reviewed. DEQ must then establish TBELs.*
        - *TBELs are achievable at CPS as demonstrated by Dominion's wastewater treatment systems at Possum Point and Bremo power stations.*
        - *Dominion should meet the lowest standards agreed upon regarding the Possum Point and Bremo discharges*
        - *The "trigger levels" above which Dominion shall employ additional control technology should be the effluent limits.*

Staff Response:
DEQ staff disagrees that federal effluent limitations are inapplicable and that DEQ must set technology-based limits for this case. The facility is regulated by 40CFR Part 423, Federal Effluent Guidelines and Standards for the Steam Electric Power Generating Point Source Category. Part 423 federal effluent guidelines (FEGs) were promulgated by EPA in 1982, and were recently updated as a final rule in the Federal Register published on November 3, 2015. DEQ staff believes the 1982 and 2015 FEGs

satisfactorily apply to the wastewater discharges authorized by the proposed permit, and therefore there is no need to establish or apply case-by-case site-specific technology-based effluent limits to this facility.

EPA Headquarters staff, in discussions with DEQ staff, have confirmed that decant and interstitial dewatering discharges associated with the closure of coal ash impoundments are subject to the federal ELGs. The discharge of "legacy" wastewaters are specifically discussed in the preamble to the FEGs, and are regulated as best available technology economically achievable (BAT) at 40CFR §423.13. The Preamble states:

"*For purposes of the BAT limitations in this rule, this preamble uses the term 'legacy wastewater' to refer to FGD wastewater, fly ash transport water, bottom ash transport wastewater…generated prior to the date determined by the permitting authority that is as soon as possible beginning November 1, 2018, but no later than December 31, 2023… Under this rule, legacy wastewater must comply with specific BAT limits, which EPA is setting equal to the previously promulgated BPT [best practicable control technology currently available] limits on TSS in the discharge of fly ash transport water, bottom ash transport water, and low volume waste sources…*" While not referred to in the body of the regulation as "legacy" wastewaters, these wastewaters are nonetheless addressed in the federal regulation via subparagraph (1)(ii) of respective subsections 40CFR 423.13(g), (h), (i), (j) and (k).

The "as soon as possible" date is to be separately established for each of the eligible waste streams (e.g., FGD wastewaters, fly ash transport wastewaters, and bottom ash transport wastewaters). Dominion's transition from a "wet" sluicing handling of fly ash and bottom ash transport waters to a "dry" handling system for both at the Chesterfield Power Station is expected to occur prior to November 1, 2018. Therefore, DEQ staff has determined November 1, 2018 to constitute the "as soon as possible" date for application of the updated 2015 ELGs to both the fly ash and bottom ash transport wastewaters directed to Outfalls 101 and 004. In accordance with 40CFR §§423.13(h)(1)(ii) and 423.13(k)(1)(ii) of the federal rule, fly ash and bottom ash transport wastewaters that are generated *prior* to November 1, 2018 may be discharged *after* November 1, 2018 as "legacy" wastewaters subject to a TSS ELG load limitation. Similar wastewater streams generated *after* November 1, 2018 would be subject to the updated 2015 federal BAT requirements of 40CFR §§423.13(h)(1)(i) and 423.13(k)(1)(i) requiring "no discharge."

TSS load limitations and footnotes have been correspondingly added to Parts I.A.2 (Outfall 101) and I.A.10 (Outfall 004) to reflect the updated 2015 federal BAT requirements. The Part I.A footnotes are proposed to read, "*There shall be no discharge of bottom ash or fly ash transport wastewaters generated at this facility on or after November 1, 2018. On or after November 1, 2018, any bottom ash or fly ash transport wastewaters generated at this facility prior to that date shall be regarded as legacy wastewaters, which may be discharged in accordance with the TSS load limitations for this outfall. The TSS load limitation shall only apply to legacy fly ash and bottom ash transport wastewaters discharged after November 1, 2018*." Staff have also reduced the TSS maximum concentration for Outfall 101 to correspond to the combined waste stream TSS concentration at Outfall 004 on the basis that Outfall 101 will be effectively treating the historical wastestreams that have entered the LAP prior to drawdown and dewatering.

DEQ staff has determined the permittee will need additional time beyond November 1, 2018 to plan, design, construct, optimize and commission a biological treatment system to address the FGD wastewater stream directed to Outfalls 302 and 402. Based on documents submitted by the permittee of schedules needed to plan, design, procure, and install equipment; changes being made at the power station in response to the final CCR rule and other recent federal regulations; and a commissioning period, DEQ staff has determined March 29, 2022 to be the "*as soon as possible*" date for upgrades and optimization of the equipment treating the FGD wastewater stream to be reasonably expected to be completed. The "*as soon as possible*" effective date

of the ELG applying to the FGD wastewater stream is reinforced in the permit by the schedule established in Part I.B.2. FGD wastewaters generated *prior* to March 29, 2022, but discharged *after* March 29, 2022, will qualify as "legacy" wastewaters subject to the federal technology-based TSS effluent guideline established per 40CFR §423.13(g)(1)(ii). DEQ staff believes FGD wastewaters discharged prior to the "as soon as possible" ELG effective date of March 29, 2022 would be addressed by the 1982 federal ELGs that is equivalent to the BPT-based concentration limit times the flow of the FGD wastewater stream. TSS load limitations have been correspondingly added to Parts I.A.6 (Outfall 302) and I.A.12 (Outfall 402) to reflect the updated 2015 federal BAT requirements.

In establishing the BAT limits for legacy wastewaters in its final rule, EPA explicitly rejected technologies other than surface impoundments due to the lack of adequate data, and the way legacy wastewaters are handled at steam electric power generating plants. In considering BAT limits for legacy wastewaters, DEQ is not aware of data of sufficient or defensible robustness to supersede EPA's rejection of technologies other than surface impoundments, though it should be noted that conversion from a wet ash handling system to a dry ash handling system (and closing the ponds) represents BPT for wet ash handling wastewaters.

Technology-based treatment requirements (Best Professional Judgment) may be developed at the state level in the absence of applicable federal technology-based effluent limits (40CFR 125.3(c)). While DEQ staff believes applicable federal technology-based treatment requirements exist in both the 1982 and 2015 federal ELG rule makings, if the Board were, nonetheless, to set technology-based limitations at the state level, the methodologies to do so are prescribed in the federal regulations at 40CFR 125.3(d), which are the same factors EPA is required to consider in the development of FEGs. Under these regulations DEQ does not have the authority to arbitrarily prescribe treatment technology requirements without going through the appropriate evaluations, including factors such as cost benefit analyses and non-water quality environmental impact (i.e. energy requirements, etc.). Because the EPA has just undertaken this effort as described above, DEQ does not believe that the same exercise at the state level will yield different results; it should be noted that when establishing effluent guidelines for a category of industry, EPA often focuses on "representative parameters", with the idea that technology installed to treat the "representative parameters" also treats other parameters that may reasonably be expected in the wastestream but do not at this time require their own technology-based limits.

While it may be possible to treat the effluent to drinking water quality, DEQ does not have the authority to impose this requirement on the permittee. As outlined in the Reasonable Potential Analyses as documented in the Fact Sheet, the proposed effluent limits will be protective of the Human Health numeric water quality criteria promulgated in the Virginia Water Quality Standards regulations at 9VAC25-260-140.

Water-quality based effluent limits (WQBEL) are established on a site-specific basis. Therefore, DEQ staff does not believe it to be appropriate to apply WQBELs established for the Possum Point or Bremo Power Station locations to the Chesterfield Power Station site.

DEQ staff does not believe that setting the numeric effluent limitations equal to the trigger levels is appropriate or warranted, as their intended roles are different. The numeric effluent limitations are established to protect instream water quality and beneficial uses, whereas the trigger levels are intended to ensure implementation of adequate operational wastewater treatment controls.

DEQ staff does not believe action on this permit warrants delay until a Concept Engineering Report (CER) is submitted and reviewed for the temporary Centralized Source Waste Treatment System (CSWTS) that is anticipated to be installed to treat the dewatering discharges. Requirements addressing CERs, and standard schedules for their submittal, are addressed by special condition Part I.C.20 of the proposed permit.

DEQ believes that, with the addition of the above mentioned TSS load limitations, the effluent limits in the proposed permit for Outfalls 101, 302-305, 004, 402 and 005, and utilization of a surface impoundment technology, properly satisfy the 2015 FEG and BAT/BPT requirements. As these internal outfalls discharge to another treatment unit (Low Volume Wastewater Treatment System, aka Outfall 301), treatment above and beyond the aforementioned requirements has already been accounted for.

3. ***The draft permit does not comply with the Clean Water Act because it authorizes discharges far in excess of water quality standards, instead relying on dilution to meet water quality standards (SELC, JRA, Chesapeake Bay Foundation (CBF), Sierra Club, VCN, Form Letter 2, Form Letter 3, Mabel Kinzie-Berdel, Isabella Pezzulo, Ben Hawkins, Charles Epes, Eugenia Anderson-Ellis, Jessica Sims, Glenn Besa, Jamie Brunkow, Jonathan Gendzier, Drew Gallagher, Chris French).***

- *DEQ relies on cooling water and the James River to dilute the concentration of released pollutants. This is not sufficiently protective of water quality and allows discharges in excess of WQS in violation of the CWA.*
- *DEQ relies on a 2:1 mixing ratio and an assumption of complete mixing – these are not proper assumptions. The permit allows the use of the James River to dilute pollution in lieu of applying best technology economically achievable*
- *DEQ's own permitting guidance says that the use of mixing zones is generally invalid for tidal waters.*
- *DEQ should take note of cumulative/synergistic impacts as a function of the combination of metals, salts, and high temperature.*
- *Dominion should be required to treat water to bring heavy metals to below the known thresholds for biological risk to aquatic life.*

Staff Response:

Permit limits are designed to be protective of the Virginia Water Quality Standards (WQS) which establish the beneficial uses of all waters in the Commonwealth and the narrative and numeric criteria necessary to ensure water quality is maintained and protected. Those beneficial uses include recreation, e.g., swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life; wildlife; and the production of edible and marketable natural resources (e.g., fish and shellfish). These WQS are adopted as regulation (9VAC25-260 et. seq.), and represent the best available science to ensure protection of water quality.

The WQS include criteria to protect aquatic life from acute (1-hour) and chronic (4 day) exposures. The WQS also include criteria to prevent human health impacts from consumption of fish over a period of years. If the effluent limits that are based on acute and chronic criteria are attained then aquatic life in the receiving waters will be fully protected consistent with the WQS.

The WQS (9VAC25-760-20.B) authorizes the Board to use mixing zone concepts in evaluating limitations for VPDES permits, and DEQ and NPDES permitting authorities in other states routinely use mixing zones in writing NPDES permits. Historically, the VPDES permit for the Chesterfield Power Station has included mixing ratios consistent with DEQ guidance for discharges to tidal waters.

Outfalls 001 and 002 have historically been assigned default tidal mixing ratios of 50:1 for chronic water quality criteria and 2:1 for acute water quality criteria. In response to public concerns following the Dominion Bremo and Possum Point public hearings, DEQ staff reduced the chronic mixing ratio for Outfalls 001 and 002 from 50:1 to 2:1. This is an extremely conservative assumption and provides for this mixing (2:1) within just a few feet of the discharge pipe.

Water Quality Based Effluent Limitations (WQBELs) were developed for Outfall 003 assuming zero dilution or mixing. This means that Dominion will be required to meet water quality standards (with the exception of Temperature – see item # 8 below) at the point of discharge (i.e., where the cooling channel enters Farrar Gut). WQBELs were developed for Outfall 301 assuming worst-case concentrations and flow volumes from the waste streams constituting Outfalls 302-305, and assuming critical low flows through Outfall 003, into which Outfall 301 will discharge.

The VPDES permit has historically treated Outfalls 004 and 005 as a combined discharge to Farrar Gut and accounted for the dilution provided by the cooling water discharge from Outfall 003. The cooling water discharge provided a dilution factor of 31:1. DEQ staff has reevaluated the mixing of these two outfalls and the draft permit sent to public notice included significantly more stringent mixing assumptions. Outfall 004, at the head of Farrar Gut, has been allowed no mixing for the application of acute and chronic water quality criteria. Likewise, mixing ratios for Outfall 005 near the mouth of Farrar Gut have has been reduced from 31:1 to 2:1 for both acute and chronic water quality criteria. The reduction in mixing assumptions for Outfall 004 resulted in new WQBELs, for which a schedule of compliance has been added to the permit.

For the drawdown and closure of the Upper and Lower Ash Ponds, Dominion proposes to eliminate the discharges from Outfalls 004 and 005, install a wastewater treatment system in accordance with Special Condition No. 21 of the VPDES permit and discharge via Outfall 101. Outfall 101 is a new internal outfall that will discharge to the James River via existing cooling water Outfalls 001 and 002. WQBELs were developed for the drawdown/dewatering of the Lower Ash Pond and Upper Ash Pond using the same 2:1 tidal mixing ratios now assigned to Outfalls 001 and 002. It should be noted that Outfall 101 will comingle with the cooling water discharges in either Outfall 001 or 002 prior to discharge. The dilution provided by the cooling water flows greatly exceeds the 2:1 ratio assumed for Outfall 101.

The cumulative impacts of pollutants other than temperature are addressed by the Whole Effluent Toxicity (WET) limitations included on Outfalls 101 and 004. Vertebrate and invertebrate species are placed in various concentrations of the effluent to establish whether or not there are any acute or chronic impacts on the species. The impact of temperature is not addressed by the WET limit because the standardized test protocols must be applicable to a variety of discharges and must be repeatable by any certified laboratory facility. Temperature impacts of the discharge are limited by the heat rejection limitations on Outfalls 001, 002 and 003 in conjunction with the 316(a) Thermal Variance addressed in item #8 below.

4. The draft permit fails to require effluent limit guideline compliance "as soon as possible" (SELC, JRA, Sierra Club, VCN, Jonathan Gendzier, Chris French)

- *The permit requires Dominion to come into compliance with final limits within four to six years. There is no support that this time frame is "as soon as possible".*
- *Dominion should be required to report its progress more frequently than semi-annually.*
- *Randall Grachek (wastewater engineer) says Dominion can install a system and achieve compliance by late 2017/early 2018 at the latest. DEQ must require shorter timeframe (July 2018)*
- *DEQ should evaluate interim treatment. DEQ should consider use of the dewatering treatment system to treat FGD purgewater (402) until the FGD WWTP is built.*

Staff Response:

As part of the update to Part 423 federal effluent guidelines (FEGs), published in the Federal Register on November 3, 2015, EPA defined "as soon as possible" as "November 1, 2018, unless the permitting authority establishes a later date, after receiving information from the discharger, which reflects a consideration of the following factors: (1) Time to expeditiously plan (including to raise capital), design,

procure and install equipment to comply with the regulations of this part. (2) Changes being made or planned at the plant in response to... (iii) Regulations that address the disposal of coal combustion residuals as solid waste… (3) For FGD wastewater requirements only, an initial commissioning period for the treatment system to optimize the installed equipment. (4) Other factors as appropriate."

"As soon as possible" is established independently for each waste stream and varies from November 1, 2018 (ash transport ELG) to March 29, 2022 (flue gas desulphurization ELG) as documented in the Fact Sheet. DEQ has issued a Solid Waste permit for the construction and operation of an industrial landfill, as part of the conversion of the facility from wet ash handling to dry ash handling, and will be developing other solid waste permits for the conversion of the Lower and Upper Ash Ponds from wastewater treatment units to solid waste disposal units. As the Lower Ash Pond is currently utilized to provide wastewater treatment to several waste streams in addition to the wet handling of ash, Dominion has submitted documentation to DEQ outlining the scheduling of multiple construction activities necessary to complete the conversion of the ash handling while providing wastewater treatment to existing waste streams, as well as to meet the effluent limit guidelines promulgated in the November 3, 2015 Federal Register. DEQ believes the compliance dates and interim operating and reporting requirements in the permit are appropriate and fulfill the requirements of the federal regulations.

5. ***The permit contains insufficient monitoring requirements (SELC, JRA, CBF, Sierra Club, VCN, BREDL, Isabella Pezzulo, John Flannery, Glenn Besa, Jason Mullins, Tom Burkett).***
    - *004 and 005 should have daily monitoring of flow and chemical constituents at appropriate quantification levels for all parameters at all times (not just during dewatering). Monitoring results should be submitted to DEQ within 1 day of sampling.*
    - *DEQ should require discharge data/sampling at all process and stormwater discharge outlets after 0.25" of rainfall.*
    - *001and 002 should be monitored for coal ash metals*
    - *301, 302, 303, 304 - Insufficient monitoring frequency.*
        - *Interim limits: Monthly monitoring is insufficient. Should be twice weekly*
        - *Final limits (where monthly average and daily max are set): Monthly monitoring is wholly inadequate. Should be daily.*
    - *Monitoring for Bromides or trihalomethanes should be required at all industrial-influenced outfalls at CPS*
        - *Increased bromides have been observed at public drinking water intakes where FGD systems are installed upstream.*
        - *DEQ should confer with downstream drinking water utilities that may be affected*
    - *004 and 101 – Heavy Metals and other parameters with monthly and/or daily max limits should be monitored daily. Parameters with no limit should be monitored twice weekly.*
    - *402 - Parameters with monthly and/or daily max limits should be monitored daily. Parameters with no limit (including interim limits) should be monitored twice weekly.*
    - *005 should have at least all the limits of 004. Parameters with monthly and/or daily max limits should be monitored daily. Parameters with no limit (including interim limits) should be monitored twice weekly.*
    - *WET testing requirements in the permit are inadequate. Should occur prior to, and three times per week, during drawdown and dewatering; results to be submitted to DEQ within 1 day of testing and made public.*
    - *More sensitive species reflecting the sensitivity of local fauna should be used for the WET testing.*
    - *Third party monitoring (or third party verification) of all test results should be required. Data (including historic data) should be shared with the public.*

- *Final permit should mandate baseline sampling (and ongoing sampling) of James River and Farrar Gut for water quality, sediment quality, ecological health, and fish tissues.*

Staff Response:

Consistent with DEQ guidance, the VPDES permit has historically had 1/Month or 2/Month monitoring for most parameters with the exception of nutrients and Total Residual Chlorine. This monitoring frequency is typical of continuous process wastewaters. In response to public input on the VPDES permits for the Bremo and Possum Point Power Stations, monitoring for the dewatering of the ash ponds (Outfall 101) was increased to 3/Week. Additionally, the permit requires that (1) samples be processed within four business days, (2) sample results be reported to DEQ weekly, (3) inline process samples be taken a minimum of once every four hours and (4) the permittee immediately cease the discharge upon receipt of results in exceedance of permit limitations. In light of the operational and compliance history of the dewatering operations at both the Bremo and Possum Point Power Stations, DEQ staff believes that the proposed interim and final monitoring and reporting requirements for Outfalls 004, 005 and 101 are appropriate.

Most stormwater discharges from this site are permitted through a separate industrial stormwater general permit (see 9VAC25-151). Stormwater sources addressed by this individual permit are comingled with multiple other wastestreams prior to treatment and discharge. Sampling frequencies for Outfalls 301, 302, 303 and 304 have been established that reasonably assess the permittee's performance and effectively evaluate the potential impact on the receiving stream. Outfalls 302, 303 and 304 are all individually treated waste streams which in turn discharge to the low volume treatment system and ultimately Outfall 301. These internal outfalls generally include weekly final limitation monitoring requirements for the major parameters of concern. Federal regulations require that all pollutants limited in industrial NPDES permits include both monthly average and daily maximum limitations. This requirement is not a determination that all parameters must be monitored daily to establish compliance. DEQ staff has evaluated the potential impact of all waste streams and believes that the proposed monitoring frequencies are appropriate.

Monitoring for both bromides and trihalomethanes are required by the EPA form 2C submitted in support of the permit reissuance. Although DEQ has no WQS for Total Bromides, effluent data for four trihalomethanes (Chloroform, Bromoform, Dichlorobromethane and Chlorodibromomethane) were evaluated for compliance with the water quality criteria for human health and no potential for exceedance of the water quality criteria was determined to exist. Although the discharge is not to a section of the river designated as a public water supply, a review of the available online Water Quality Reports for the Virginia-American Water Company located approximately 20 miles downstream indicates that the facility is in compliance with the MCL for Total Trihalomethanes.

As Outfalls 001 and 002 consist of once-through cooling water, sampling for coal ash constituents would only be of use during the pond closure activities, and the permit already requires such monitoring at Outfall 101. Outfall 005 does not require the same monitoring as Outfall 004 because unlike the Upper Ash Pond (005), the Lower Ash Pond currently performs wastewater treatment for the low-volume waste sources on site.

The permit requirements for both chemical and biological testing stipulate methods that are consistent with other VPDES permits issued by DEQ and have been previously approved by the EPA during draft permit review. DEQ strives to ensure that the monitoring requirements of the permit will demonstrate whether a facility's effluent complies with the limits contained in the permit, and that the monitoring is performed in a scientifically sound manner. In particular, concerns about the synergistic effects of multiple pollutants (whether or not the pollutants are limited by the permit or are even addressed by water quality standards) should be satisfactorily addressed by the requirements for whole effluent toxicity testing. Whole effluent toxicity testing is performed on vertebrate and invertebrate species using the most sensitive species

commercially available and representative of the receiving stream. The selection of the *Pimephales promelas* (fathead minnow) and *Ceriodaphnia dubia* (water flea) are appropriate for testing for the tidal freshwater James River.

The VPDES program is a self-monitoring program under the Clean Water Act. The DEQ performs inspections of facilities and collects samples from the facility as necessary. VPDES permittees are also required to submit monthly Discharge Monitoring Reports (DMRs) to DEQ. These monitoring reports contain summaries of the facility's self-monitoring results, and are reviewed by the DEQ's compliance staff. All DMR results are public records which can be provided upon request. DEQ will also post the results of the coal ash pond dewatering monitoring program on their website weekly.

Staff does not believe ambient monitoring of sediment, water, fish tissue and aquatic communities is necessary. As discussed in the staff response to comments #2 and #3, the effluent limits have been established using very conservative assumptions to protect and maintain the WQS. Accordingly, effluent monitoring to demonstrate compliance with the established effluent limits will serve to gage the potential impact of the discharge on the aquatic environment. Additionally, this permitting action addresses dewatering activities required for closure. Closure of these impoundments is governed by and addressed by the 2015 EPA Final Rule on the Disposal of Coal Combustion Residuals and applicable provisions of the Virginia Solid Waste Management Regulations. Closure and post-closure care under those requirements will include groundwater monitoring, associated surface water monitoring, and other measures. The requirements of a solid waste permit will continue to ensure that the facility is not causing any impacts to surface water.

6. ***Hazardous materials (e.g. untreated Coal Ash Waste) are currently being discharged into Farrar Gut (SELC, JRA, HAL, Thomas Pakurar, Blue Ridge Environmental Defense League (BREDL), CBF, Tom Burkett, Isabella Pezzulo, Lynn Wilson, Evie Scott, Sue Gier, Bill Johnson, William Dent, Jane Kirchner, John Flannery, Glen Besa, Emilie Rex, Chris French).***
    - *Photographs taken by JRA show unpermitted discharges of coal ash (cenospheres) from LAP into Farrar Gut*
        - *Investigate the 4/5/16 sample by JRA/HAL, particularly with regard to the cenospheres not settling in the Lower Ash Pond.*
        - *If appropriate, suggest legislative changes needed to prevent recurrence.*
        - *DEQ should impose more stringent stormwater standards that will aggregate fly ash particles for better management.*
    - *Floating buoys blocking the outfall are not adequate for collecting or preventing the waste from entering Farrar Gut*
        - *These buoys block public access and allow Dominion to use state waters for collection of its waste.*
    - *Permit should require CPS to investigate possible discharge to surface waters from UAP and LAP using Duke Study methodology.*
        - *If detected, a treatment process should be submitted to DEQ for approval and be implemented within permit term. Public comment on investigation should be allowed.*

Staff Response:

Upon the conversion of these ponds to solid waste disposal facilities (including the decanting, dewatering and capping), the sources of pollutants that are the object of these comments will be eliminated.

Other than stream monitoring performed under strict QAQC protocols included in DEQ's Citizen Monitoring Program, DEQ does not use the results of citizen monitoring to make regulatory decisions. The

staff will however evaluate any sampling submitted to DEQ to determine if it indicates any issues that DEQ should evaluate further. Accordingly, DEQ staff has evaluated the results of monitoring performed by a Duke University researcher as well as the James River Association (JRA) in conjunction with Hands Across the Lake.

Duke's sampling at the Chesterfield Power Station was conducted as parts of a broader study of coal ash ponds in the southeastern US, in order to demonstrate the utility of an analytical method. This method evaluated the relative concentrations of isotopes of boron and strontium in coal and coal combustion residuals compared to their normal occurrence in the environment for the purpose of determining whether surface contamination of water bodies could be attributed to groundwater contamination from the coal ash ponds. The study found that concentrations of coal combustion contaminants are higher around coal ash storage facilities than in background samples; however, leaking pond water does not necessarily cause significant contamination, and impacts need to be considered on a case-by-case basis. None of the stream monitoring adjacent to the Chesterfield Power Station exceeded the applicable Virginia water quality criteria. The sample taken from one unidentified pipe adjacent to the Lower Ash Pond did exceed the chronic water quality criteria for Selenium.

Partial sampling results provided by Hands Across the Lake were reported to show water quality violations for Arsenic, Chromium and Lead below Outfall 004. However, laboratory notes regarding the collection and preparation of the sample casts doubt as to whether or not the sample results are representative. The sample results also appear to be total recoverable rather than the dissolved form used to evaluate compliance with water quality criteria. The laboratory name was redacted, eliminating DEQ's ability to follow up on these issues.

In response to the Duke and JRA sampling results, DEQ collected samples on July 28, 2016 using clean metals sampling techniques from Outfall 004 and from locations approximating those listed in the Duke and JRA sampling events. These samples were analyzed for total dissolved and total recoverable metals. The analyses of the in-stream samples showed no exceedance of any metals water quality criteria that are applicable to this reach of the James River. Outfall 004 showed exceedances of water quality criteria for selenium and thallium, both of which are limited in the draft permit and subject to a schedule of compliance.

Several commenters objected to the presence of cenospheres in the discharge from Outfall 004 and the placement of containment booms below the outfall. Cenospheres are sand sized hollow spheres produced as a byproduct of coal combustion. Cenospheres typically consist of inert silica and alumina and are used in the manufacture of a variety of products. Although no additional permit provisions are proposed, DEQ will work with Dominion to minimize the discharge of cenospheres until the discharge from Outfall 004 is terminated. During a site inspection on August 19, 2016, Dominion was observed staging equipment to collect cenospheres from the surface of the Lower Ash Pond.

7. ***Objections to the proposed 2'/day drawdown limit on the basis that it risks dam instability (SELC, JRA, VCN, Chris French)***
   - *2 foot per day drawdown is out of line with drawdown rates for other coal ash ponds – could result in instability and could result in rapid mixing of coal ash sediment and the supernatant.*
   - *At all other coal ash sites, DEQ and DCR imposed a six inch per day drawdown rate. DEQ should not tolerate any increased risk of dam instability. DEQ should limit drawdown to six inches per day.*

Staff Response:
The Department of Conservation and Recreation (DCR) Division of Dam Safety has concurred that a 2'/day drawdown does not risk dam instability. The issue of drawdown rate is more a concern when the

level of an impoundment fluctuates and the dam does not settle properly during drawdown prior to the pond being refilled; in this case, the drawdown will immediately precede closure of the ponds.

The treatment system that will be in place at Outfall 101 will contain design and operational features sufficient to prevent the release of coal ash.

8. ***The proposed 316(a) Thermal Variance violates the Clean Water Act (SELC, JRA, CBF, Henricopolis SWCD, Sierra Club, VCN, Form Letter 2, Form Letter 3, Mable Kinzie-Berdel, Carolyn Crighton, Jane McKinley, Ben Hawkins, Eugenia Anderson-Ellis, Jane Kirchner, Jessica Sims, John Flannery, Jamie Brunkow, Emilie Rex, Christine Natale)***

- *DEQ cannot rely on a study from 2003 that uses data from 1998*
- *2003 study was based on parameters and assumptions that no longer apply (cites changes in temperature and flow rates at CPS)*
- *2003 study relied on four-mile thermal mixing zone (head of Farrar Gut to confluence with James). This mixing zone violates all three subsections of Virginia's mixing zone regulations.*
- *Draft permit assumes the receiving stream for 003 and 004 has same temperature as the effluent because 003 creates free flowing stream characteristics in a tidal water body and is evaluated as if discharging to a dry ditch.*
  - *The assumption that the temperature of the effluent (51.7 degrees C – 90th percentile) is equal to the temperature of Farrar Gut is absurd*
  - *Farrar Gut is a navigable waterway and not a dry ditch.*
- *There is insufficient evidence in the record to support the reissuance of the variance.*
- *A new study must be performed.*
- *DEQ must include temperature limits rather than aggregate heat rejection limits.*
- *Dominion should cool the discharge water to match the river water prior to discharge.*
- *The permit fails to comply with Virginia's Tier 1 Antidegradation Policy*
  - *The draft permit substantially and negatively impacts existing uses. (References 120 degree temperatures from 001-003).*

Staff Response:

DEQ staff disagrees with comments received that the conclusions of the 2003 study assessing the thermal impact of the full load operation of the Chesterfield Power Station on the fish assemblage of the Lower James River cannot be relied upon to re-certify the 2004 §316(a) thermal variance, and that temperature limitations, rather than heat rejection limits, are necessary to assure the protection and propagation of a balanced, indigenous population of fish and wildlife in the receiving stream. Commenters suggested the re-certification of the thermal variance be re-considered, and supporting documentation studies be updated, based on recent discoveries of spawning populations of Atlantic Sturgeon, assumptions used to characterize ambient stream conditions, and global warming trends.

Federal regulations promulgating §316(a) thermal variances are addressed at 40CFR §§125.70 through 125.73. 40CFR §125.72(c) states, "*Any application for the renewal of a section 316(a) variance shall include only such information…as the Director requests within 60 days after receipt of the permit application.*" The application for permit reissuance was initially submitted by Dominion dated May 28, 2009, and received on June 2, 2009. The date of permit application preceded by several years, the National Oceanic and Atmospheric Administration's February 2012 listing of Atlantic sturgeon as an endangered species under the Endangered Species Act. DEQ records of correspondence documents dated within 60 days following receipt of the permit application show no records specifically requesting additional §316(a) renewal information. DEQ staff responded with an application deficiency letter dated June 18, 2009, but this letter did not identify any additional information needs pertaining to the §316(b) variance. Therefore,

in accordance with federal regulatory procedures, the permittee is under no further obligation to provide additional updated §316(a) studies or information for this permit reissuance cycle.

Upon granting a §316(a) thermal variance, the variance supersedes the mixing zone boundary restrictions found in 9VAC 25-160-20.B.1 and B.2 of the Virginia Water Quality Standards.

DEQ staff finds no regulatory basis to require Dominion to cool the discharge water to match the temperature of the river prior to discharge. Instead, the Virginia Water Quality Standards authorize the use of thermal variances or mixing zones for water to be discharged at temperatures that vary from the receiving waters.

DEQ concurs that Farrar Gut is navigable waters. Zero low flow assumptions were assigned to represent the most conservative mix scenario possible (i.e., if the receiving waters were to consist entirely of effluent). Alternatively, entering low flow assumptions commensurate with receiving waters being available for mix would have resulted in a substantially less conservative risk-based analysis.

The thermal discharge from the Chesterfield Power Station has occurred for several decades, and precedes the inaugural 1974 effective date of the Virginia Water Quality Standards regulation and federal Clean Water Act. DEQ staff believes the thermal effluent limits of this permit will maintain and protect those beneficial uses that existed in 1974, and would therefore be in compliance with anti-degradation policies.

Studies that are currently underway by Dominion to develop compliance strategies to address §316(b) cooling water intake structure impingement mortality and entrainment standards may have potential interrelationships to the facility's future management of its thermal discharges. DEQ staff have added language to the proposed permit requiring Dominion to update the 2003 study analyses to support renewal of the §316(a) thermal variance during the next permit cycle. The special condition would establish that the update of the original §316(a) thermal variance study be performed on the same schedule as the §316(b) cooling water intake structure impingement mortality and entrainment studies. Special considerations involving the presence of spawning Atlantic Sturgeon in the vicinity of Chesterfield Power Station would be concurrently addressed by these efforts. It is proposed the §316(a) and §316(b) studies both be submitted 9 months prior to permit expiration allowing for a comprehensive evaluation of any impacts of the Chesterfield Power Station on Atlantic Sturgeon.

9. ***Objections to impingement/entrainment of aquatic life; illegal impingement of Atlantic sturgeon (no take permit); additional 316(b) requirements are necessary, including the elimination of withdrawal by converting to a closed-loop system (SELC, JRA, CBF, Sierra Club, VCN, Form Letter 2, Jamie Brunkow, Jane Kirchner, Jessica Sims, Chris French)***
    - *The impingement and entrainment characterization plans were authored before the October 2015 entrainment of two larval Atlantic Sturgeon at CPS. The assessment of the potential for entrainment of early life stages as "unlikely/unexpected" must be reassessed.*
    - *DEQ should consider requiring more frequent inspection of the CWIS to assess the need for backwash and/or travelling screen operation – especially during Sturgeon spawning times. 316(b) monitoring should be no less than every three days during operation (rather than weekly).*
    - *Dominion should include in its annual report to DEQ on federally listed or endangered species a description of all steps taken in the reporting period to reduce number of organisms taken by impingement/entrainment.*
    - *DEQ should require further measures to reduce flow and associated entrainment (referenced FWS recommendations)*
    - *DEQ should require a habitat conservation plan in the permit.*

- *DEQ should require BTA.*
- *DEQ should require submittal of studies as they are completed*
- *DEQ should require Dominion to combine the impingement reduction technologies in place with flow reduction for this permit reissuance.*
- *DEQ should require Dominion to retrofit the CPS to include a closed-cycle recirculating system in order to reduce impingement and entrainment and reduce heat pollution*
- *316(b) extension (to 270 days prior to permit expiration) is unreasonable.*
  - *DEQ is only required to establish an alternate schedule if the applicant "demonstrates that it could not develop the required information by the applicable date for submission". Dominion has made no such demonstration.*
  - *Closed-cycle cooling is a well-established BTA and EPA's 316(b) rule was signed over two years ago. Dominion has had plenty of time to prepare for compliance.*

Staff Response:

Under the federal Endangered Species Act (ESA), the National Marine Fisheries Service (NMFS) and the U.S. Fish & Wildlife Service (USFWS) are responsible for the management of federally-listed threatened and endangered (T&E) species. The NMFS has primary management oversight of marine and anadromous fish, including the Atlantic Sturgeon. In accordance with federal regulations at 40CFR §125.98(h), the NMFS and USFWS were afforded two separate opportunities to provide reasonable and prudent recommendations of additional control measures (including monitoring and reporting) for the protection of federal listed species, including any measures to minimize any incidental "take" or likely jeopardy to the listed species: 1) during a 60-day review period of the permit application, as well as 2) during the public comment period of the proposed permit. Neither federal agency identified additional control measures necessary to protect federally-listed T&E species (including the Atlantic Sturgeon) for DEQ's consideration. The proposed permit includes a special condition (Part I.D.7) that establishes, "Nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act".

DEQ staff believes comments suggesting the facility be converted to a closed-loop system are premature at this time. The 2014 federal cooling water intake structure (CWIS) rule at 40CFR §125.94 identifies several Best Technology Available (BTA) options to achieve the standards for impingement mortality in addition to closed-cycle re-circulating cooling systems. 40CFR §125.94 also establishes the BTA standard for entrainment to be determined on a site-specific basis after taking into consideration prescribed factors, including changes in particulate emissions, land availability, social benefits and costs, among others. Such analyses are to be based on information submitted in accordance with 40CFR §122.21(r), which has not been fully developed. Part I.D.3 of the proposed permit requires submittal of the 40CFR §122.21(r) information for evaluation prior to the next permit cycle. DEQ staff believes it is therefore premature to conclude that the final BTA for this facility to be closed-cycle cooling, absent of the fully developed supporting 40CFR §122.21(r) documentation.

Comments urging direct and indirect benefits to T&E species be thoroughly accounted for in any cost and benefit studies are not relevant to this permit action, as such information will be evaluated with the 40CFR §122.21(r) submittals prior to the next permit cycle.

DEQ staff disagrees with comments suggesting the granting of an Alternate Schedule extension (for submittal of the 40CFR §122.21(r) information) to be unreasonable, and to require submittal of study results as they are completed, rather than 270 days prior to permit expiration. 40CFR §125.95(a) of the federal Rule establishes that the submittal of information outlined in 40CFR §122.21(r) is to be made "…*when applying for a subsequent permit.*" The application for reissuance for this permit cycle was originally due in July 2009, or before promulgation of the current 2014 CWIS Rule. Consequently,

Dominion was not in position at the time of their permit renewal application to have developed the requisite information commensurate with the 2014 CWIS Rule. Therefore, DEQ staff believes the granting of an Alternate Schedule to have been reasonable.

9VAC25-31-100.E establishes a duty to re-apply at least 180 days before the expiration date of the existing permit. 9VAC25-31-70 allows for continuation of expiring permits so long as the permittee has submitted a timely and complete application for a new permit. As mentioned above, the submittal of the 40CFR §122.21(r) information is to be made when applying for a subsequent permit. The submittal deadline proposed in Part I.D.3 was established at 270 days prior to permit expiration to provide a buffer for the permittee to ensure their reissuance application (with the additional 40CFR §122.21(r) information) has an opportunity to be deemed complete by DEQ staff in time to remain eligible for permit administrative continuance, if subsequently needed. DEQ staff believes that requiring the submittal of the 40CFR §122.21(r) reports upon their completion mid-permit cycle, as requested in public comments received, rather than when applying for a subsequent permit, would be inconsistent with the well-established permit renewal application process.

DEQ staff believes comments requesting a) facility conversion to a closed-cycle cooling system; b) the CWIS be retrofitted to reduce the screen mesh size to 1 mm; c) the CWIS be retrofitted to reduce through-screen velocities to 0.25 foot-per-second (fps) are not reasonable and prudent for implementation as interim measures at this time. As stated in the preamble to the 2014 cooling water intake rule, "*…under 50 CFR 402.14(i)(2), 'Reasonable and prudent measures, along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or timing of the action and may involve only minor changes.'*" The Preamble further mentions, "*Installation of closed-cycle cooling is a major design alteration of a facility involving significant design and construction activities (the range of costs associated with closed-cycle cooling is described elsewhere in today's notice). Because installation of closed-cycle cooling does alter the basic design of a facility and would involve more than minor changes, as described in the Services' regulations and Handbook, EPA does not expect that installation of closed-cycle cooling would be specified as a measure solely for purposes of minimizing incidental take*."

Mesh sizes of 1 mm and maximum intake velocities of 0.25 fps have been routinely applied in Virginia under the Virginia Water Protection Permit (VWPP) program for a number of years. However, those standards have been applied for new construction or applicant-initiated proposed reconstruction, and not to the retrofitting of existing intake structures where construction activities are not otherwise proposed.

To achieve mesh sizes of 1mm and maximum intake velocities of 0.25 fps, alterations would be needed to the intake structure and screens. Such alterations would be expected to involve significant changes in the basic design of the cooling water intake structures in order to maintain sufficient withdrawal volumes for the continued operation of the plant. The continuity equation (Flow, Q = Cross Sectional Area, A x Velocity, V) may be used to demonstrate that to maintain an equivalent amount of flow to operate the plant, a reduced intake velocity would necessitate additional cross sectional area; in other words, alterations to the basic design by requiring physical enlargement of the intake structure cross sectional opening. Likewise, smaller mesh sizes may subject the screens to more frequent debris fouling and head loss, reducing the effective cross sectional area for water to pass through, thereby increasing through-screen velocities. Replacement of the screen mesh would require retrofitting of the conventional traveling screens, and corresponding re-evaluation of the performance and design of the screen backwash system and individual catch baskets. The retrofitting would be expected to involve more than minor changes. Consequently, DEQ staff believes the recommendations to reduce screen mesh sizes and intake velocities do not meet the "reasonable and prudent" criteria.

DEQ staff believes comments suggesting inspection monitoring of the CWIS (including the traveling screen and backwash system) be required more frequently than weekly are not warranted. Federal regulations at 40CFR §125.96(e) establish the weekly monitoring frequency for visual or remote monitoring of the CWIS. Virtually all VPDES facilities with surface water cooling water withdrawals greater than 2 million gallons per day are located in the vicinity of T&E habitat, so the presence of a particular T&E species at Chesterfield Power Station is not considered sufficiently unique to warrant a monitoring frequency inconsistent with other Virginia facilities, nonetheless more stringent than federal requirements.

With cooling water intake structures physically located on the bank of the James, as compared to submerged mid-stream, DEQ staff believes comments requesting use of remote monitoring equipment on a routine basis is not warranted, as the CWISs are in nearby vicinity of the plant and can be easily accessed by land.

10. ***Concerns about groundwater contamination (SELC, JRA, Frances Broaddus-Crutchfield, BREDL, Glenn Besa, Nicole Ellis, Form Letter 3, Herb Walke, Peter Martin, Sofia Melo, Tom Pakurar, Bob Olsen, Tom Burkett, Graham Jennings)***

- *DEQ should require groundwater monitoring*
- *DEQ should require more up-to-date test methods to determine leaching from the ash*
- *DEQ must test for radioactive isotopes and for hexavalent chromium*
- *Given that the current closure plans allow the ash storage facilities to remain unlined, it is possible that pollution of groundwater (and subsequently surface water) will continue post-closure.*
- *Current draft provides for 30 years of care – include long-view plan for ongoing site monitoring and care*
- *DEQ should require a comprehensive assessment of corrective action alternatives and their efficacy before allowing closure of the UAP and LAP. Permit should be put off until Dominion conducts sufficient research on residential and commercial water wells near the coal ash ponds. Further third-party testing should occur. (Hearing – Petition)*
- *No permits authorizing closure should be granted until these issues are fully resolved*

Staff Response:

Closure of these impoundments is governed by and addressed by the 2015 EPA Final Rule on the Disposal of Coal Combustion Residuals. Closure and post-closure care, including post-closure care periods under those requirements, will be addressed through the closure under a solid waste permit.

11. ***General objections to the permit with regard to the maintenance of water quality standards (WQS) and protection of (1) public health (recreational uses) and use of the James River as a drinking water supply (SELC, JRA, Sierra Club, HAL, Caryl Burtner, Jane McKinley, Charles Epes, Eugenia Anderson-Ellis, Mable Kinzie-Berdel, Suzanne Keller, Carolyn Crighton, John Flannery, Sofia Melo, Tom Pakurar, Tom Burkett); (2) aquatic life and threatened and endangered species (specifically the Atlantic Sturgeon) (SELC, JRA, CBF, HAL, Henricopolis SWCD, Sierra Club, VCN, Form Letter 2, Form Letter 3, Mable Kinzie-Berdel, Carolyn Crighton, Jason Mullins, Jane McKinley, Mike Ostrander, John Flannery, Drew Gallagher, Jamie Brunkow, Christine Natale, Chris French); and (3) the health of sustenance fishermen (BREDL, Mike Ostrander).***

- *There is a great amount of Recreational Use around the CPS and that should be taken into consideration regarding discharges of heat and pollutants.*
- *Atlantic Sturgeon have been found (and may spawn) near the CPS.*

Staff Response:

Permit limits are designed to maintain the water quality criteria adopted by the State Water Control Board to protect the beneficial uses of all waters in the Commonwealth. These beneficial uses include *"…recreation uses, e.g. swimming and boating; the propagation and growth of a balanced, indigenous population of aquatic life, including game fish, which might reasonably be expected to inhabit them; wildlife; and the production of edible and marketable natural resources, e.g. fish and shellfish"*. The WQS include additional criteria for the protection of water supply intakes where appropriate (typically 5 miles upstream of a water supply intake. It should be noted that this reach of the James River is not designated as a Public Water Supply, the nearest public water supply intake being located approximately 20 river miles downstream (note that the Jones Neck and Turkey Island cutoffs reduce this distance by approximately half). The WQS are adopted as regulation (9VAC25-260 et. seq.), and represent the best available science to ensure protection of water quality. As there are no human health standards for in-stream temperature, caution signs posted in the vicinity of Farrar Gut represent the best alternative to a water quality based effluent limit.

The Water Quality Standards adopted by the Board are intended to be protective of all aquatic species including those considered to be threatened or endangered. DEQ staff agrees however that the presence of spawning Atlantic Sturgeon in the vicinity of CPS warrants special consideration of the thermal variance and the impingement/previously provisions under Sections 316(a) and 316(b) of the Clean Water Act. See additional discussion under Items #8 and #9 above.

The human health criteria applied in this permit are intended to protect against any human health impacts from consuming fish outside of the very limited mixing zones over the course of an individual's lifetime. The river segment in question is subject to fish consumption advisories issued by the Virginia Department of Health (VDH) for Kepone and PCBs. DEQ and VDH develop warning signs which are post at public boat landings by the Virginia Department of Game and Inland Fisheries. See additional comments in response to Item # 3 concerning the application of water quality criteria, limited mixing zones, etc.

12. ***DEQ should terminate the permit on the basis that air emissions from the combustion of fossil fuels contribute to global warming (Jane Kirchner, Chris Wiegard)***

Staff Response:

The VPDES Permit Regulation and State Water Control Law do not authorize DEQ to account for air emissions of greenhouse gases in its permitting process.

13. ***A public comment period should be required for the review of the Concept Engineering Report to be submitted for the treatment works to be constructed for Coal Ash Pond decanting and dewatering, as well as for any modification of the permit by adding annual concentration limits (CBF)***

Staff Response:

The effluent limits establish the requirements for the permittee to meet and the effluent limits have been the subject of public notice and comment. The Concept Engineering Report (CER) is specifically excluded from the requirement for public notice and public comment pursuant to the Board's Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation when not required to be submitted as part of the permit application.

It should be noted that a final CER cannot be submitted until the final effluent limits have been established through the permitting process. Once final effluent limits are established the permittee is required to

submit a final CER for DEQ approval that describes the final selection of treatment technology to be employed to meet effluent limits. DEQ does not prescribe the methodology by which the permittee is to comply with effluent limits.

Regarding the request regarding public notice of additional annual concentration limits, changes in effluent limits (including the addition of limits not previously included in the permit) are already subject to public notification requirements.

14. ***Concern about regulation of stormwater, including a request to inspect stormwater BMPs once every three days during closure activities (CBF, HAL)***

Staff Response:

The draft VPDES permit requires that structural BMPs be inspected weekly for structural integrity and operational efficiency during ash pond closure activities. Dominion will be required to register for and comply with the Construction Stormwater General Permit to address the land disturbance activities associated with closure of the wet ponds and construction of the new wastewater treatment facilities to be permitted as Outfalls 301-305. DEQ staff believe that the conditions in the draft permit, the requirements in the Construction Stormwater General Permit and the requirements in the Industrial Stormwater General Permit are sufficiently protective.

15. ***Insufficient low-level PCB monitoring(SELC, JRA, Sierra Club, Chris French)***

- *DEQ should require low-level PCB sampling using Method 1668 at all non-cooling water outfalls (101, 301, 302, 304, 004, 401, 402, 005).*
- *The old PCB sampling method cannot detect low-level PCBs – thus there is no support in the record for the conclusion that "the data currently indicated that PCBs are not present in the discharge" and that "this permit should neither cause nor contribute to the impairment" because that data is unable to test properly for PCBs.*
- *Final permit should include two wet PCB samples at least annually for all stormwater-only discharges*

Staff Response:

The permit contains a prohibition of discharges of PCBs as required by the Federal Effluent Guidelines (FEGs) for Steam Electric Power Generating facilities. Compliance with this provision is established by EPA Method 608 which was the approved method in use when the "no discharge" provision of the FEG was developed. Lower level PCB monitoring is now possible using Method 1668 although EPA has yet to promulgate the method for the NPDES permit program. DEQ is using Method 1668 in the development of Total Maximum Daily Loads. The proposed permit requires monitoring of Outfall 301 using Method 1668 in preparation of a PCB TMDL to be completed for this section of the James River. Once the facility has converted to a dry-ash handling system and closed the wet ponds, all process activities not associated with cooling water will be directed to Outfall 301. Testing for PCBs at that outfall, using Method 1668, should establish whether there is an issue with PCBs originating from the process water on the site. Industrial stormwater on the site is regulated under the industrial stormwater general permit (see 9VAC25-151). Prior to development of the PCB TMDL, DEQ intends to require low level PCB stormwater monitoring using Method 1668 on the site in accordance with Part I.A.(1).c.(4)(a) of the industrial stormwater general permit. DEQ agrees that the Method 608 monitoring performed to date is insufficient to determine whether or not the facility is contributing to the impairment and has modified the Fact Sheet accordingly.

16. ***Concerns were raised about the discharge of landfill leachate (Henricopolis SWCD, Isabella Pezzulo)***

Staff Response:

As discussed in staff's response to Comment #4, 40CFR Part 423, Federal Effluent Guidelines and Standards for the Steam Electric Power Generating Point Source Category published by EPA as a final rule in the Federal Register on November 3, 2015 applies to discharges from this facility.

The new rule establishes effluent limitation guidelines that apply to combustion residual leachate for existing and new sources. "New source" is defined at 9 VAC 25-31-10. This definition applies unless the applicable new source performance standard otherwise defines "new source." The FEG Technical Development Document and final rule refer to new and existing sources in terms of power generating units. §423.15 requires that NSPS apply to any new source as of November 19, 1982. The permittee has four coal fired power generating units that produce combustion residuals, the most recent of which was put in service in May of 1969. Consequently, the combustion residual leachate generated by the proposed landfill is technically considered an existing source under the FEGs.

The VPDES Permit Regulation, at 9 VAC 25-31-210 and 220, provides for the establishment of permit conditions, including effluent limitations, on a case-by-case basis, to assure compliance with the requirements of the State Water Control Law. As discussed in the Guidance on Preparing VPDES Permit Limits Memo No. 00-2011, state law does not prescribe the method by which such case-by-case decisions are made but rather indicates that the decision may "consider available or installed technology, the required water quality or any combination of these considerations."

New source performance standards recognize that the owners of new sources have the opportunity to incorporate into their operations the best available demonstrated control technologies. The permittee has proposed a new landfill to receive coal combustion residuals upon the facility's conversion to dry ash management. Combustion residual leachate from that landfill will be a new wastestream. The technology required to treat to NSPS standards for combustion residual leachate is also required for the BAT standards for the FGD. Because the permittee is subject to the BAT standards for the FGD wastestream, the necessary treatment technology is available and will be installed at the permitted facility. Consequently, it is the Department's professional judgment to apply NSPS to the combustion residual leachate.

Leachate from the recently permitted landfill will be treated by a unit designated in the draft permit to discharge via Outfall 304; DEQ believes that the effluent limits in the draft permit for Outfall 304, and utilization of a surface impoundment technology, properly satisfy the 2015 FEG and BAT/BPT requirements. As this internal outfall discharges to another treatment unit (Low Volume Wastewater Treatment System, aka Outfall 301), treatment above and beyond the aforementioned requirements has already been accounted for.

17. ***Permit should include a Sediment Reopener to address changes to Phase III Watershed Implementation Plan (WIP) as well as blueprint modifications after 2018 (CBF).***

Staff Response:

The permit already contains several reopeners that may be germane to sediment loads from the facility, including: "This permit shall be modified or alternatively revoked and reissued if any approved wasteload allocation procedure, pursuant to Section 303(d) of the Clean Water Act, imposes wasteload allocations, limits or conditions on the facility that are not consistent with the permit requirements." Nutrient and sediment loads that could be attributed to stormwater are currently monitored per the requirements of the Industrial Stormwater General Permit.

18. ***Permit limits should be established by direct measurements of the pollutants involved as opposed to calculations (HAL)***

Staff Response:
WQBELs are developed using a Reasonable Potential Analysis, which by its nature requires a statistical analysis of the discharge, using either collected or assumed data. Where assumed data is used, the analysis includes worst case assumptions about wastewater strength, volume of the discharge and receiving stream conditions.

19. ***Volume and Rate of Discharge should be reduced (John Flannery)***

Staff Response: The volume of the cooling water discharges is driven by the ambient conditions and cannot be readily limited in the permit without the permittee undertaking other changes to the process.

The daily volume of water to be discharged during the decanting and dewatering of the Lower Ash Pond and Upper Ash Pond is limited by the permit and will be significantly lower than was previously allowed in the history of the facility; this flow will eventually be altogether terminated when the ponds are closed.

The volume of low-volume process wastes to be discharged after the ponds are closed is also lower than historically permitted, and the daily flow volume is limited by the permit.

Comments 22 - 31 were received from the permittee during the public comment period

20. ***Dominion requests that the following footnote be included in Part I.A.2: "Both Chromium III and Chromium VI may be measured by the total chromium analysis. The total chromium analytical test QL shall be less than or equal to the lesser of the Chromium III or Chromium VI method QL listed in Part I.C.14.a. If the result of the total chromium analysis is less than the analytical test QL, both Chromium III and Chromium VI can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL]."***

Staff Response:
The draft permit has been amended to include the following language:

"Both Chromium III and Chromium VI may be measured by the total chromium analysis. The total chromium analytical test QL shall be less than or equal to the lesser of the Chromium III or Chromium VI method QL listed in Part I.C.14.a.

If the result of the total chromium analysis is less than the analytical test QL, both Chromium III and Chromium VI can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].

If the result of the total chromium analysis is detectable, both Chromium III and Chromium VI shall be reported as the number measured.

If the result of the total chromium analysis exceeds effluent limitations for Chromium III, Chromium VI, or both, the result shall be considered a violation of the respective limitations."

21. ***Prior to the discharge of the Low Volume Wastewater Treatment System (LVWWTS) to Outfall 301, there will likely be a period when the LVWWTS is routed to the Lower Ash Pond. To clarify that the effluent limitations of Outfalls 302, 303, and 304 do not become effective during this period, nor do Outfalls 401 and 402 cease to be effective during this period, Dominion requests that the words "the LVWWTS" be***

replaced with "Outfall 301" in the following sections: I.A.6, I.A.7, I.A.8, I.A.11, I.A.12, I.C.17.c, I.C.17.d, I.C.17.g(2), and I.C.25.

Staff Response:
The draft permit has been edited to include these revisions so as to clarify that the limitations and monitoring requirements for these sections become effective upon the discharge from Outfall 301.

22. ***To clarify that the limitations in Section I.A.9 become effective following the testing and commissioning of the Coal Pile Runoff Metals Treatment System, Dominion requests that the words "Metals Treatment System" be included after "Coal Pile Runoff". Further, Dominion requests a footnote be added to the I.A.9 table stating the following: "Commencement of discharge does not include testing and commissioning of the Coal Pile Runoff Metals Treatment System. The permittee shall notify DEQ within 72 hours of the operational in-service date (commencement of discharge) of the Coal Pile Runoff Metals Treatment System."***

Staff Response:
The draft permit has been edited to include "Metals Treatment System" after "Coal Pile Runoff" in Section I.A.9 for clarification purposes. Additionally, the following has been added as a footnote to I.A.9: "*Commencement of discharge does not include testing and commissioning of the Coal Pile Runoff Metals Treatment System. The permittee shall notify DEQ within 72 hours of the commencement of discharge of the Coal Pile Runoff Metals Treatment System.*"

23. ***Dominion requests that I.A.10.d be rewritten as follows for clarification: "See definition of drawdown in Part I.C.24."***

Staff Response:
The footnote has been revised thus, for clarification: "See Part I.C.24 for discharge notification requirements and a definition of drawdown"

24. ***Permits Section I.A.12 has interim and final limits with 1/month and 1/week monitoring frequencies, respectively, for all parameters except pH, TSS, and Oil and Grease. Dominion requests that similar interim and final monitoring frequencies be incorporated for pH, TSS, and Oil and Grease.***

Staff Response:
The monitoring requirements for the aforementioned parameters have been retained as drafted.

25. ***Section I.C.10.c requires submittal of a sampling protocol for low level PCB monitoring of Outfall 301 within 90 days following reissuance of the permit. Discharge from Outfall 301 is not expected to occur for some time after the effective date. Thus, Dominion requests that this section be reworded as follows: "The sampling protocol shall be submitted to DEQ-Piedmont Regional Office for review and approval at least 30 days prior to the first sample collection."***

Staff Response:
The draft permit language has been changed to reflect submittal at least 30 days prior to the commencement of discharge from Outfall 301.

26. ***The QL for thallium in Section I.C.14.a is difficult to achieve and should not be necessary during the interim monitoring period for Outfall 004 under Part I.A.10. Thus, Dominion requests that the following sentence be added to the end of Section I.C.14.a: "The QL for Total Recoverable Thallium does not apply to analyses performed to satisfy the interim monitoring requirements of Part I.A.10."***

Staff Response:
The requirement in the draft permit has been retained to ensure consistency with other VPDES permits.

27. ***To clarify that the 72-hour and 24 hour notifications of Section I.C.24 are required prior to and following the initiation of the discharge or drawdown water, respectively, Dominion requests that the first two sentences of this section be reworded as follows: "The permittee shall notify the DEQ Piedmont Regional office at least 72 hours prior to the planned commencement of the discharge of drawdown water in the Upper or Lower Ash Ponds in preparation for pond closure. A second notification to the DEQ Piedmont Regional Office shall be provided within 24 hours after initiating the discharge of drawdown water from the Upper or Lower Ash Ponds."***

Staff Response:
The draft permit has been edited to include this revision for clarification.

28. ***Dominion requests that the first annual certification required by Section I.D.5 be required by February 10, 2018.***

Staff Response:
The deadline suggested by Dominion represents the current interpretation of that requirement; therefore, no change to the draft permit is necessary.

29. ***Dominion noted the following clerical errors in the permit: Permit Section I.A.3.d should refer to Outfall 002, not Outfall 001. The first annual monitoring period in section I.C.17.g(1) should begin October 1, 2016. The EPA Analysis Number for Beta-Endosulfan in Attachment A should be 608/625.***

Staff Response:
The draft permit has been edited to correct these clerical errors.

Attachment C
VPDES Permit No. VA0004146
Dominion – Chesterfield Power Station
Commenter Listing

Introduction

The information within this attachment serves as supporting documentation staff's response to comments document for those comments received during the public comment period associated with the this permitting action. A listing of those who provided comments is found here.

All comments received in response to this permitting action are available upon request.

Comments Submitted During Public Comment Period June 6, 2016 – July 21, 2016		
Name	**Date Received**	**Staff Comments**
Abbott, Diana	6/19/2016	Form Letter 1
Acuff, Ardis	6/19/2016	Form Letter 1
Adams, Daniel	6/19/2016	Form Letter 1
Aldhizer, F. P.	6/19/2016	Form Letter 1
Allen, Travis	6/19/2016	Form Letter 1
Almond, Anna	6/19/2016	Form Letter 1
Amel, Dean	6/19/2016	Form Letter 1
Aquino, Tracey	6/19/2016	Form Letter 1
Ashley, Edward	6/19/2016	Form Letter 1
Athavale, Anjali	6/19/2016	Form Letter 1
Bahringer, Nils and Carol	6/19/2016	Form Letter 1
Baizer, Judith	6/19/2016	Form Letter 1
Banis, William	6/19/2016	Form Letter 1
Barhydt, Mary	6/19/2016	Form Letter 1
Barker, Carolyn	6/19/2016	Form Letter 1
Barth, Don	6/19/2016	Form Letter 1
Bartos, Scott	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Bass, Gary	6/19/2016	Form Letter 1
Bauer, Nicholas	6/19/2016	Form Letter 1
Beasley, Claire	6/19/2016	Form Letter 1
Becker, Elaine	6/19/2016	Form Letter 1
Becker, Shannon	6/19/2016	Form Letter 1
Bencheck, Elizabeth	6/19/2016	Form Letter 1
Benson, Paul	6/19/2016	Form Letter 1
Bjork, Nils	6/19/2016	Form Letter 1
Bloom, John	6/19/2016	Form Letter 1
Booth, Fay	6/19/2016	Form Letter 1
Boremski, Pamela	6/19/2016	Form Letter 1
Bowling, William	6/19/2016	Form Letter 1
Bradshaw, Beverly	6/19/2016	Form Letter 1
Brattland, Janel	6/19/2016	Form Letter 1
Brinkley, Ursula	6/19/2016	Form Letter 1
Brooks, Lisa	6/19/2016	Form Letter 1
Brown, Dick	6/19/2016	Form Letter 1
Brown, Gerald	6/19/2016	Form Letter 1
Buffington, John	6/19/2016	Form Letter 1
Bundy, Brandon	6/19/2016	Form Letter 1
Burkard, Bruce	6/19/2016	Form Letter 1
Butler-Elder, Susan	6/19/2016	Form Letter 1
Cadrette, Janice	6/19/2016	Form Letter 1
Calambro, Leslie	6/19/2016	Form Letter 1
Calhoun, Rebecca	6/19/2016	Form Letter 1
Caliri, Lois	6/19/2016	Form Letter 1
Callan, D	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Campbell, David	6/19/2016	Form Letter 1
Capps, Joshua	6/19/2016	Form Letter 1
Cardone, Bethany	6/19/2016	Form Letter 1
Carlone, Ruth	6/19/2016	Form Letter 1
Carlow, John	6/19/2016	Form Letter 1
Cary, Kim	6/19/2016	Form Letter 1
Casey, Randall	6/19/2016	Form Letter 1
Chaney, Ann	6/19/2016	Form Letter 1
Christman, Kim	6/19/2016	Form Letter 1
Cippel, Maureen	6/19/2016	Form Letter 1
Clark, Phil	6/19/2016	Form Letter 1
Clark, Marilyn	6/19/2016	Form Letter 1
Clark-Stone, Karen	6/19/2016	Form Letter 1
Clore, Jim	6/19/2016	Form Letter 1
Cloyd, Allyson	6/19/2016	Form Letter 1
Cochran, Harold	6/19/2016	Form Letter 1
Colby, Elizabeth P.	6/19/2016	Form Letter 1
Coleman, Cathy	6/19/2016	Form Letter 1
Comer, Charles	6/19/2016	Form Letter 1
Conley, M.	6/19/2016	Form Letter 1
Conover, Charlie	6/19/2016	Form Letter 1
Cormons, Matt	6/19/2016	Form Letter 1
Coss, Shelly	6/19/2016	Form Letter 1
Cotton, Connie	6/19/2016	Form Letter 1
Cowan, Christina	6/19/2016	Form Letter 1
Crawford, Dan	6/19/2016	Form Letter 1
Croft, Carlton	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Culbertson, Debra	6/19/2016	Form Letter 1
Daiss, Becky	6/19/2016	Form Letter 1
Dane, Dorothy	6/19/2016	Form Letter 1
Daniels, Elliot	6/19/2016	Form Letter 1
Davis, Laurel	6/19/2016	Form Letter 1
Davis, John	6/19/2016	Form Letter 1
Davis, Mark	6/19/2016	Form Letter 1
Dawes, Karen	6/19/2016	Form Letter 1
De Vos, Philip	6/19/2016	Form Letter 1
Denby, Timothy	6/19/2016	Form Letter 1
Dervan, Michael	6/19/2016	Form Letter 1
Diamond, John	6/19/2016	Form Letter 1
Dixon, Jim	6/19/2016	Form Letter 1
Doades, Kristy	6/19/2016	Form Letter 1
D'Onofrio, Adam	6/19/2016	Form Letter 1
Dovel, Lisa	6/19/2016	Form Letter 1
Downer, John	6/19/2016	Form Letter 1
Dunn, Brian	6/19/2016	Form Letter 1
Eagle, Fredette	6/19/2016	Form Letter 1
Eckhardt, KL	6/19/2016	Form Letter 1
Ecton, Henry	6/19/2016	Form Letter 1
Emanuel, Eli	6/19/2016	Form Letter 1
Emerson, Barabara	6/19/2016	Form Letter 1
Evans, Hersha	6/19/2016	Form Letter 1
Fairman, Jerry	6/19/2016	Form Letter 1
Farnham, Ross	6/19/2016	Form Letter 1
Feirtag, Donna	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Fellowes, Monica	6/19/2016	Form Letter 1
Firth, Richard	6/19/2016	Form Letter 1
Firth, Shawn	6/19/2016	Form Letter 1
Fiscler, Carolyn	6/19/2016	Form Letter 1
Ford, Nancy	6/19/2016	Form Letter 1
Francis, John	6/19/2016	Form Letter 1
Franco, Diana	6/19/2016	Form Letter 1
French, Jeanette	6/19/2016	Form Letter 1
Friend, Peter	6/19/2016	Form Letter 1
Gaige, Eve	6/19/2016	Form Letter 1
Galarza, Jacquelyn	6/19/2016	Form Letter 1
Gaul, Ashley	6/19/2016	Form Letter 1
German, P.	6/19/2016	Form Letter 1
Ghafari, Cynthia	6/19/2016	Form Letter 1
Giesy, Theo	6/19/2016	Form Letter 1
Gilman, Alexis	6/19/2016	Form Letter 1
Glait, Susan	6/19/2016	Form Letter 1
Grant, Mary	6/19/2016	Form Letter 1
Green, Arden	6/19/2016	Form Letter 1
Greene, Chris	6/19/2016	Form Letter 1
Greenwalt, Cathy	6/19/2016	Form Letter 1
Groom, Tim	6/19/2016	Form Letter 1
Gross, Kesha	6/19/2016	Form Letter 1
Grove, Ralph	6/19/2016	Form Letter 1
Guillen, Ellen	6/19/2016	Form Letter 1
Gunay, Zeki	6/19/2016	Form Letter 1
Haque, Nabilah	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Harris, Harry	6/19/2016	Form Letter 1
Hartley, James	6/19/2016	Form Letter 1
Hartman, Brian	6/19/2016	Form Letter 1
Harvey, Cathy	6/19/2016	Form Letter 1
Haupt, Carolyn	6/19/2016	Form Letter 1
Hayes, Lucy	6/19/2016	Form Letter 1
Heald, Seth	6/19/2016	Form Letter 1
Hebert, Colin	6/19/2016	Form Letter 1
Helmer, Jake	6/19/2016	Form Letter 1
Henrietta, J. Mike	6/19/2016	Form Letter 1
Hill, Cindee	6/19/2016	Form Letter 1
Hinch, Judieth	6/19/2016	Form Letter 1
Hinkle, Carol	6/19/2016	Form Letter 1
Hoak, Michael	6/19/2016	Form Letter 1
Hoffman, Tom	6/19/2016	Form Letter 1
Hopler, Ross	6/19/2016	Form Letter 1
Horton, Dana and Sharon	6/19/2016	Form Letter 1
Howard, Mark	6/19/2016	Form Letter 1
Howell, Cynthia	6/19/2016	Form Letter 1
Howell, Linda	6/19/2016	Form Letter 1
Howley, Mark	6/19/2016	Form Letter 1
Hughes, Lynne	6/19/2016	Form Letter 1
Hunt, Henry	6/19/2016	Form Letter 1
Hunter, Charles	6/19/2016	Form Letter 1
Jackson, Michael	6/19/2016	Form Letter 1
Jaggard, Vanda	6/19/2016	Form Letter 1
Jahn, Edward	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Jarrett, Charlene	6/19/2016	Form Letter 1
Jenkins, Derrick	6/19/2016	Form Letter 1
Jennier, Gwen	6/19/2016	Form Letter 1
Jennings, David	6/19/2016	Form Letter 1
Jensen-Vick, Karen	6/19/2016	Form Letter 1
Johnson, Ronald	6/19/2016	Form Letter 1
Johnson, Rhonda	6/19/2016	Form Letter 1
Johnson, William	6/19/2016	Form Letter 1
Johnson, Diana	6/19/2016	Form Letter 1
Jordan, Robert	6/19/2016	Form Letter 1
Kalinowski, Keith	6/19/2016	Form Letter 1
Kane, Brooke	6/19/2016	Form Letter 1
Kaplan, Paulette	6/19/2016	Form Letter 1
Keister, Rucker	6/19/2016	Form Letter 1
Kent, Ellen	6/19/2016	Form Letter 1
Kerr, Tara	6/19/2016	Form Letter 1
Khakberdiev, Temur	6/19/2016	Form Letter 1
Kianpourian, Nahid	6/19/2016	Form Letter 1
Kilpatrick, Sheila	6/19/2016	Form Letter 1
King, Eric	6/19/2016	Form Letter 1
King, Andy	6/19/2016	Form Letter 1
King, Thomas	6/19/2016	Form Letter 1
Kingsley, Lisa	6/19/2016	Form Letter 1
Kirk, Jamie	6/19/2016	Form Letter 1
Kleymeyer, Charles	6/19/2016	Form Letter 1
Kogi, Hiroko	6/19/2016	Form Letter 1
Kohlhafer-Regan, Glenda	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Koslen, Marc	6/19/2016	Form Letter 1
Kubzdela, Kashka	6/19/2016	Form Letter 1
Langham, Sheri	6/19/2016	Form Letter 1
Lanzman, Sarah	6/19/2016	Form Letter 1
Larrabee, B.	6/19/2016	Form Letter 1
Lavin, Matthew	6/19/2016	Form Letter 1
Leback, Warren	6/19/2016	Form Letter 1
Leedy, Joseph	6/19/2016	Form Letter 1
Lewis, Victoria	6/19/2016	Form Letter 1
Light, John	6/19/2016	Form Letter 1
Lill, Susi	6/19/2016	Form Letter 1
Lindsey, K.	6/19/2016	Form Letter 1
Lipcsey, Todd	6/19/2016	Form Letter 1
Lisi, Richard	6/19/2016	Form Letter 1
Liske, Patricia	6/19/2016	Form Letter 1
Loftus, Jolynn	6/19/2016	Form Letter 1
Long, Thomas	6/19/2016	Form Letter 1
Loomis, David	6/19/2016	Form Letter 1
Lyon, Terry	6/19/2016	Form Letter 1
Macias, Gina	6/19/2016	Form Letter 1
Mack, Claire	6/19/2016	Form Letter 1
Makurat, Joan	6/19/2016	Form Letter 1
Maleki, Zahra	6/19/2016	Form Letter 1
Marroni, Edmond	6/19/2016	Form Letter 1
Masucci, David	6/19/2016	Form Letter 1
Maurer, Jeffrey	6/19/2016	Form Letter 1
McAloon, Kate	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Mcbride, Graham	6/19/2016	Form Letter 1
Mcclanahan, Joel	6/19/2016	Form Letter 1
Mcconchie, Donna	6/19/2016	Form Letter 1
McCraw, Peg	6/19/2016	Form Letter 1
Mcfarland, Mary Ann	6/19/2016	Form Letter 1
Mcgrain, Richard	6/19/2016	Form Letter 1
McKeithen, Anne	6/19/2016	Form Letter 1
Meder, Frederick	6/19/2016	Form Letter 1
Metzger, Carol	6/19/2016	Form Letter 1
Midyette, Shirley	6/19/2016	Form Letter 1
Miles, Mitchell	6/19/2016	Form Letter 1
Miller, Mary	6/19/2016	Form Letter 1
Miller, Genevieve	6/19/2016	Form Letter 1
Mitchell, Johann	6/19/2016	Form Letter 1
Moffet, Barbara	6/19/2016	Form Letter 1
Moloney, Julie	6/19/2016	Form Letter 1
Moore, Jolanta	6/19/2016	Form Letter 1
Moore, April	6/19/2016	Form Letter 1
Moore, Claudia	6/19/2016	Form Letter 1
Moranobrown, Darleen	6/19/2016	Form Letter 1
Morawski, Frances	6/19/2016	Form Letter 1
Moschopoulos, C.	6/19/2016	Form Letter 1
Moss, Brian	6/19/2016	Form Letter 1
Murray, Joe	6/19/2016	Form Letter 1
Nadel, Barabara S.	6/19/2016	Form Letter 1
Nagy, Karen	6/19/2016	Form Letter 1
Nichols, Paige	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Nielsen, Anne	6/19/2016	Form Letter 1
Norcross, Frank	6/19/2016	Form Letter 1
Ogden, Geoffrey	6/19/2016	Form Letter 1
Ohanlon, Pat	6/19/2016	Form Letter 1
Olson, Larry	6/19/2016	Form Letter 1
Osborn, James	6/19/2016	Form Letter 1
Owen, Martha	6/19/2016	Form Letter 1
Owen, William	6/19/2016	Form Letter 1
Owens, Beverley	6/19/2016	Form Letter 1
Pages, Eleanor	6/19/2016	Form Letter 1
Paige, Gina	6/19/2016	Form Letter 1
Palacky, Tami	6/19/2016	Form Letter 1
Palmer, R. Brent	6/19/2016	Form Letter 1
Pappas, Tom	6/19/2016	Form Letter 1
Parker, Deborah	6/19/2016	Form Letter 1
Parker, Rod	6/19/2016	Form Letter 1
Parochniak, Steve	6/19/2016	Form Letter 1
Parr, Amanda	6/19/2016	Form Letter 1
Parra, Alice	6/19/2016	Form Letter 1
Parsons, June	6/19/2016	Form Letter 1
Passut, Robert	6/19/2016	Form Letter 1
Patterson, Bruce	6/19/2016	Form Letter 1
Paulson, David	6/19/2016	Form Letter 1
Payden-Travers, Christine	6/19/2016	Form Letter 1
Pelausa, Enrico	6/19/2016	Form Letter 1
Pennington, Susan	6/19/2016	Form Letter 1
Peregrina, Deborah	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Petrocelli, Mandy	6/19/2016	Form Letter 1
Petsco, John	6/19/2016	Form Letter 1
Petzold, Tom and Jen	6/19/2016	Form Letter 1
Phemister, Jim and Carol	6/19/2016	Form Letter 1
Phillips, George	6/19/2016	Form Letter 1
Pien, Natalie	6/19/2016	Form Letter 1
Pierschalla, Alexandra	6/19/2016	Form Letter 1
Piselli, Tony	6/19/2016	Form Letter 1
Polite, Damaion	6/19/2016	Form Letter 1
Pollock, Mary	6/19/2016	Form Letter 1
Poon, Leslie	6/19/2016	Form Letter 1
Popp, Edith	6/19/2016	Form Letter 1
Post, Amanda	6/19/2016	Form Letter 1
Pringle, Janice	6/19/2016	Form Letter 1
Proffitt, Sterling and Louise	6/19/2016	Form Letter 1
Puente-Duany, Maria	6/19/2016	Form Letter 1
Purnell, Til	6/19/2016	Form Letter 1
Rauscher, Bruce	6/19/2016	Form Letter 1
Ray, Laura	6/19/2016	Form Letter 1
Rector Jr., Carson	6/19/2016	Form Letter 1
Redden, Carolyn	6/19/2016	Form Letter 1
Reed, Anna	6/19/2016	Form Letter 1
Reynolds, Carol	6/19/2016	Form Letter 1
Riswadkar, Margaret	6/19/2016	Form Letter 1
Robin, Christopher	6/19/2016	Form Letter 1
Robinson, Anne	6/19/2016	Form Letter 1
Rollo, Pat	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Ross, Catherine	6/19/2016	Form Letter 1
Rostamian, Maryam	6/19/2016	Form Letter 1
Rutherford, Richard	6/19/2016	Form Letter 1
Sandbank, Peter	6/19/2016	Form Letter 1
Sanders, Helen	6/19/2016	Form Letter 1
Sandifer, Gail	6/19/2016	Form Letter 1
Sauer, Anne	6/19/2016	Form Letter 1
Savage, Edward	6/19/2016	Form Letter 1
Sawyer, Caryl	6/19/2016	Form Letter 1
Schell, Beverly	6/19/2016	Form Letter 1
Schnebelen, Jeffrey	6/19/2016	Form Letter 1
Schneider, Linda	6/19/2016	Form Letter 1
Schorin, Susan	6/19/2016	Form Letter 1
Schweig, Jan	6/19/2016	Form Letter 1
Schweitzer, Sheryl	6/19/2016	Form Letter 1
Scott, Jo	6/19/2016	Form Letter 1
Scott, Leon	6/19/2016	Form Letter 1
Seiler, Gene	6/19/2016	Form Letter 1
Shelton, Charles	6/19/2016	Form Letter 1
Sherwood, Mary	6/19/2016	Form Letter 1
Shiner, Bill	6/19/2016	Form Letter 1
Shirron, Shirley	6/19/2016	Form Letter 1
Shnaider, Charlotte	6/19/2016	Form Letter 1
Singh, Mona	6/19/2016	Form Letter 1
Skogsberg, Ellen	6/19/2016	Form Letter 1
Sliwka, Piotr	6/19/2016	Form Letter 1
Smith, Ray	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Smith, Susan	6/19/2016	Form Letter 1
Smith, Steve	6/19/2016	Form Letter 1
Sotar, Lucy	6/19/2016	Form Letter 1
Stafford, Richard	6/19/2016	Form Letter 1
Steininger, Lorenz	6/19/2016	Form Letter 1
Stephens, Tom	6/19/2016	Form Letter 1
Stewart, Laine	6/19/2016	Form Letter 1
Stewart, Betty	6/19/2016	Form Letter 1
Stewart, William	6/19/2016	Form Letter 1
Stiff, Gina	6/19/2016	Form Letter 1
Stillman, Susan	6/19/2016	Form Letter 1
Summey, Matt	6/19/2016	Form Letter 1
Sweeney, Geri	6/19/2016	Form Letter 1
Swygert-Smith, Regina	6/19/2016	Form Letter 1
Szayna, Malgorzata	6/19/2016	Form Letter 1
Taubert, Nancy	6/19/2016	Form Letter 1
Taylor-Faison, M.	6/19/2016	Form Letter 1
Teichmann, Newton	6/19/2016	Form Letter 1
Terjung, Helmut	6/19/2016	Form Letter 1
Terry, Paula	6/19/2016	Form Letter 1
Thai, Steven	6/19/2016	Form Letter 1
Thiele, Joanne	6/19/2016	Form Letter 1
Thomas, Jeff	6/19/2016	Form Letter 1
Thompson, Ginger	6/19/2016	Form Letter 1
Tilley, Justine	6/19/2016	Form Letter 1
Tootelian-Westermann, Karen	6/19/2016	Form Letter 1
Tortorella, Richard	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Totty, Mary	6/19/2016	Form Letter 1
Travers, Julia	6/19/2016	Form Letter 1
Tricker, Rachel	6/19/2016	Form Letter 1
Tripp, Robert	6/19/2016	Form Letter 1
Troy, Gail	6/19/2016	Form Letter 1
Updike, John	6/19/2016	Form Letter 1
Urquhart, Steven	6/19/2016	Form Letter 1
VanWinkle, Jean	6/19/2016	Form Letter 1
Venzie, Larissa	6/19/2016	Form Letter 1
Vermeulen, Mary	6/19/2016	Form Letter 1
Violi, Ann	6/19/2016	Form Letter 1
Vogel, Fran	6/19/2016	Form Letter 1
Von Der Gathen, Martha	6/19/2016	Form Letter 1
Vornbrock, Betty	6/19/2016	Form Letter 1
Wallen, Lauren	6/19/2016	Form Letter 1
Walsh, B.	6/19/2016	Form Letter 1
Walters, Robert	6/19/2016	Form Letter 1
Warren, Jacki	6/19/2016	Form Letter 1
Weaver, Clare	6/19/2016	Form Letter 1
Welkowitz, William	6/19/2016	Form Letter 1
White, Richard	6/19/2016	Form Letter 1
White, Phyllis	6/19/2016	Form Letter 1
White, Eric	6/19/2016	Form Letter 1
White, Phyllis	6/19/2016	Form Letter 1
Whitford, Ann	6/19/2016	Form Letter 1
Whittaker, Sherman	6/19/2016	Form Letter 1
Wiley, Jan	6/19/2016	Form Letter 1

Name	Date Received	Staff Comments
Wills, Calvin	6/19/2016	Form Letter 1
Wilson, Nancy	6/19/2016	Form Letter 1
Wilson, Greg	6/19/2016	Form Letter 1
Wilson, Les	6/19/2016	Form Letter 1
Wise, Ronald	6/19/2016	Form Letter 1
Woiak, Sandy	6/19/2016	Form Letter 1
Woodchild, Johanna	6/19/2016	Form Letter 1
Woodruff, Richard	6/19/2016	Form Letter 1
Yater, Joan	6/19/2016	Form Letter 1
Young, William	6/19/2016	Form Letter 1
Yunus, Robert	6/19/2016	Form Letter 1
Zyvoloski, Laurel	6/19/2016	Form Letter 1
Anastasiya, Nozhenko	6/20/2016	Form Letter 1
Arthur, Cheryl	6/20/2016	Form Letter 1
Atkinson, Barbara	6/20/2016	Form Letter 1
Barber, Virginia	6/20/2016	Form Letter 1
Bardwell, Erica	6/20/2016	Form Letter 1
Barhydt, Mary	6/20/2016	Form Letter 1
Becker, Harold	6/20/2016	Form Letter 1
Boardwine, Teresa	6/20/2016	Form Letter 1
Bohorfoush, Kathleen	6/20/2016	Form Letter 1
Boone, Merrill	6/20/2016	Form Letter 1
Brooks, Hannah	6/20/2016	Form Letter 1
Bush, Erika	6/20/2016	Form Letter 1
Campbell, C	6/20/2016	Form Letter 1
Carr, Jesse	6/20/2016	Form Letter 1
Clark, Diane	6/20/2016	Form Letter 1

Name	Date Received	Staff Comments
Clusen, Charles	6/20/2016	Form Letter 1
Conover, Kathleen	6/20/2016	Form Letter 1
Courtney, John	6/20/2016	Form Letter 1
Crawford, Dan	6/20/2016	Form Letter 1
Daasyaananda, Swami	6/20/2016	Form Letter 1
Davis, Tamekka	6/20/2016	Form Letter 1
Dent, William and Judith	6/20/2016	Form Letter 1
Derzon, James	6/20/2016	Form Letter 1
DiCaprio, Carol	6/20/2016	Form Letter 1
Doherty, Christine	6/20/2016	Form Letter 1
Eder, Caolan	6/20/2016	Form Letter 1
Ellis, Thomas	6/20/2016	Form Letter 1
Erb, Cynthia	6/20/2016	Form Letter 1
Esposito, Lori	6/20/2016	Form Letter 1
Farrar, Carole	6/20/2016	Form Letter 1
Featherston, Justin	6/20/2016	Form Letter 1
Fischer, Quentin	6/20/2016	Form Letter 1
Fitzgerald, Marya	6/20/2016	Form Letter 1
Fitzpatrick, John	6/20/2016	Form Letter 1
Fox, John	6/20/2016	Form Letter 1
French, John	6/20/2016	Form Letter 1
Gardner, Kristen	6/20/2016	Form Letter 1
Harris, Gary	6/20/2016	Form Letter 1
Harris, Peggy	6/20/2016	Form Letter 1
Harris, Kimberley	6/20/2016	Form Letter 1
Henne, Carl	6/20/2016	Form Letter 1
Henshaw, Rick	6/20/2016	Form Letter 1

Name	Date Received	Staff Comments
Hicks, Jonnie	6/20/2016	Form Letter 1
Hite, George	6/20/2016	Form Letter 1
Hodsoll, Mimi	6/20/2016	Form Letter 1
Hoffman, Dawn	6/20/2016	Form Letter 1
Hoggard, Paul	6/20/2016	Form Letter 1
Hormann, Vanessa	6/20/2016	Form Letter 1
Hunt, Marion	6/20/2016	Form Letter 1
Hurd, Frances	6/20/2016	Form Letter 1
Hutto, Kirby	6/20/2016	Form Letter 1
Jiranek, Pam	6/20/2016	Form Letter 1
Johnson, Annie	6/20/2016	Form Letter 1
Johnson, Rochelle	6/20/2016	Form Letter 1
Kellam, Severn	6/20/2016	Form Letter 1
Kelly, Nancy	6/20/2016	Form Letter 1
Kidwell, Suzanne	6/20/2016	Form Letter 1
Koch, Stefan	6/20/2016	Form Letter 1
Koplen, Barry	6/20/2016	Form Letter 1
Kranowski, Steven	6/20/2016	Form Letter 1
Laieski, Caleb	6/20/2016	Form Letter 1
Larkins, Lynn	6/20/2016	Form Letter 1
Lavertu, Laura	6/20/2016	Form Letter 1
Leady, Tania	6/20/2016	Form Letter 1
Lindsay, James	6/20/2016	Form Letter 1
Maclean, David	6/20/2016	Form Letter 1
Mansur, Macda	6/20/2016	Form Letter 1
Mason, Robert	6/20/2016	Form Letter 1
Mccarthy, Susan	6/20/2016	Form Letter 1

Name	Date Received	Staff Comments
Mccracken, David	6/20/2016	Form Letter 1
Mcginnis, Cathie	6/20/2016	Form Letter 1
Merrill, Haley	6/20/2016	Form Letter 1
Minlionica, Debra	6/20/2016	Form Letter 1
Mitchell, Cindy	6/20/2016	Form Letter 1
Montgomery, Almiriam	6/20/2016	Form Letter 1
Morrow, Chris	6/20/2016	Form Letter 1
Murphy, Karen	6/20/2016	Form Letter 1
Neus, Kirsten	6/20/2016	Form Letter 1
Newhouse, Sandra	6/20/2016	Form Letter 1
Overstreet, Annette	6/20/2016	Form Letter 1
Park, Sallie	6/20/2016	Form Letter 1
Peckman, Kristin	6/20/2016	Form Letter 1
Pittard, Roger	6/20/2016	Form Letter 1
Pruner, Carol	6/20/2016	Form Letter 1
Puryear, Gray	6/20/2016	Form Letter 1
Rakes, Karen	6/20/2016	Form Letter 1
Rohn, Diane	6/20/2016	Form Letter 1
Rose, Jay	6/20/2016	Form Letter 1
Roth, Shannon	6/20/2016	Form Letter 1
Rudy, Mary	6/20/2016	Form Letter 1
Russell, Peter	6/20/2016	Form Letter 1
Schickedantz, Roger	6/20/2016	Form Letter 1
Shaunesey, Donna	6/20/2016	Form Letter 1
Sobel, Michael	6/20/2016	Form Letter 1
Spalding, Christine	6/20/2016	Form Letter 1
Spurr, Karen	6/20/2016	Form Letter 1

Name	Date Received	Staff Comments
Stiff, Chriss	6/20/2016	Form Letter 1
Swartz, Kathleen	6/20/2016	Form Letter 1
Tackett, Dennis	6/20/2016	Form Letter 1
Takacs, Carla	6/20/2016	Form Letter 1
Taylor, Tanterrian	6/20/2016	Form Letter 1
Teel, Wayne	6/20/2016	Form Letter 1
Thompson, Beverly	6/20/2016	Form Letter 1
Trice, Tina	6/20/2016	Form Letter 1
Unger, Kris	6/20/2016	Form Letter 1
Walker, Christie	6/20/2016	Form Letter 1
Wallace, Louise	6/20/2016	Form Letter 1
Warren, Kale	6/20/2016	Form Letter 1
Whittier, Edna	6/20/2016	Form Letter 1
Williams, Kevin	6/20/2016	Form Letter 1
Williamson, Barbara	6/20/2016	Form Letter 1
Wilson, James	6/20/2016	Form Letter 1
Worsley, Linda	6/20/2016	Form Letter 1
Wright, Noel	6/20/2016	Form Letter 1
Addison, David	6/21/2016	Form Letter 1
Atkinson, Cheryl	6/21/2016	Form Letter 1
Buresh, Stephanie	6/21/2016	Form Letter 1
Chalkley, David	6/21/2016	Form Letter 1
Cooper, Isabella	6/21/2016	Form Letter 1
Cruickshank, John	6/21/2016	Form Letter 1
Dwire, Janet	6/21/2016	Form Letter 1
Fairman, Marcia	6/21/2016	Form Letter 1
Fischer, Elaine	6/21/2016	Form Letter 1

Name	Date Received	Staff Comments
Francis, Pamela	6/21/2016	Form Letter 1
Garron, Steven	6/21/2016	Form Letter 1
Hinch, Dianne	6/21/2016	Form Letter 1
Hirsch, Harriet	6/21/2016	Form Letter 1
Loving, Joy	6/21/2016	Form Letter 1
Marks, Emerson	6/21/2016	Form Letter 1
Mehok, Elizabeth	6/21/2016	Form Letter 1
Potter, Lorraine	6/21/2016	Form Letter 1
Rideout, Carol	6/21/2016	Form Letter 1
Ross, Kathy	6/21/2016	Form Letter 1
Sorano, Jessica	6/21/2016	Form Letter 1
Tucker, Sally	6/21/2016	Form Letter 1
Youngs, Debra	6/21/2016	Form Letter 1
Alexander, Mark	6/22/2016	Form Letter 1
Holmes, Paula	6/22/2016	Form Letter 1
Houck, Tracy	6/22/2016	Form Letter 1
Rehm, Karen	6/22/2016	Form Letter 1
Stegle, Victoria	6/22/2016	Form Letter 1
Stiltner, Brandon	6/22/2016	Form Letter 1
Wagonhurst, Susan	6/22/2016	Form Letter 1
Brown, Malcolm	6/23/2016	Form Letter 1
Buxton, Julie	6/23/2016	Form Letter 1
Price, Myra	6/23/2016	Form Letter 1
Rol, Anna	6/23/2016	Form Letter 1
Toland, Madeleine	6/23/2016	Form Letter 1
Vogt, Michael	6/23/2016	Form Letter 1
Anderson, Adolphus	6/24/2016	Form Letter 1

Name	Date Received	Staff Comments
Andrews, Annette	6/24/2016	Form Letter 1
Chu, Jennifer	6/24/2016	Form Letter 1
Dicarlo, Sandra	6/24/2016	Form Letter 1
Fox, Chris	6/24/2016	Form Letter 1
King, Tabitha	6/24/2016	Form Letter 1
Yoder, Amanda	6/24/2016	Form Letter 1
Brainard, Verna	6/25/2016	Form Letter 1
Greenhill, Barry	6/25/2016	Form Letter 1
Manuele, Jo	6/25/2016	Form Letter 1
Stevens, Anne	6/25/2016	Form Letter 1
Koenig, Karen	6/26/2016	Form Letter 1
Taggart, David	6/26/2016	Form Letter 1
Freeman, Andrea	6/27/2016	Form Letter 1
Parham, Zachary	6/27/2016	Form Letter 1
Arnold, Angela	6/28/2016	Form Letter 1
Brooks, Kyle	6/28/2016	Form Letter 1
Childress, Sharon	6/28/2016	Form Letter 1
Eddins, Delores	6/28/2016	Form Letter 1
Loving, Linda	6/28/2016	Form Letter 1
Ludwig, Kirk and Sarah	6/28/2016	Form Letter 1
Moore, Donald	6/28/2016	Form Letter 1
Campbell, Gail	6/29/2016	Form Letter 1
Morris, T.	6/29/2016	Form Letter 1
Hathorn, Janine	7/1/2016	Form Letter 1
Schmitt, Tim	7/1/2016	Form Letter 1
Adler, Matt	7/2/2016	Form Letter 1
Pugh, Lindsay	7/4/2016	Form Letter 1

Name	Date Received	Staff Comments
Flannery II, John	7/5/2016	Original
Kenzie-Berdel, Mable	7/5/2016	Original
Anderson-Ellis, Nicole	7/6/2016	Oral Comment at Hearing, representing Henricopolis SWCD
Besa, Glen	7/6/2016	Oral Comment at Hearing
Brunkow, Jamie	7/6/2016	Oral Comment at Hearing, representing James River Association
Burkett, Tom	7/6/2016	Oral Comment at Hearing, representing Virginia River Healers
Flannery II, John P.	7/6/2016	Oral Comment at Hearing
Gallagher, Drew	7/6/2016	Oral Comment at Hearing
Gendzier, Jonathan	7/6/2016	Oral Comment at Hearing, representing Southern Environmental Law Center
Jennings, Graham	7/6/2016	Oral Comment at Hearing
Kaupp, Don	7/6/2016	Oral Comment at Hearing
Keller, Suzanne	7/6/2016	Oral Comment at Hearing
Martin, Peter	7/6/2016	Oral Comment at Hearing, representing Hands Across the Lake
Matteson, Ty	7/6/2016	Oral Comment at Hearing
Melo, Sofia	7/6/2016	Oral Comment at Hearing
Natale, Christine	7/6/2016	Oral Comment at Hearing
Olsen, Bob	7/6/2016	Oral Comment at Hearing, representing Hands Across the Lake
Pakurar, Thomas	7/6/2016	Oral Comment at Hearing, representing Hands Across the Lake
Rex, Emilie	7/6/2016	Oral Comment at Hearing
Taylor, Cathy	7/6/2016	Oral Comment at Hearing
Walke, Herb	7/6/2016	Oral Comment at Hearing
Wiegard, Chris	7/6/2016	Oral Comment at Hearing, representing Citizens Climate Lobby
Crighton, Carolyn and Dave	7/7/2016	Original
Mullins, Jason	7/7/2016	Original
Burtner, Caryl	7/8/2016	Original
Hyra, Alek	7/8/2016	Form Letter 1

Name	Date Received	Staff Comments
Pezzulo, Isabella	7/8/2016	Original
Wilson, Lynn	7/8/2016	Original
McKinley, Jane	7/9/2016	Original
Wyatt, Judy	7/14/2016	Form Letter 1
Ellis, Nicole	7/15/2016	Original
Gier, Sue	7/18/2016	Original
Hood, Logan	7/18/2016	Form Letter 1
Johnson, Bill	7/18/2016	Original
Scott, Evie	7/18/2016	Original
Agor, Brian	7/19/2016	Form Letter 2
Annique, Dunning	7/19/2016	Original
Baker, Thomas	7/19/2016	Form Letter 2
Baskette, Brad	7/19/2016	Form Letter 2
Bonini, Christina	7/19/2016	Form Letter 2
Brennan, Colleen	7/19/2016	Form Letter 2
Cabot, Joel	7/19/2016	Form Letter 2
Calvert, Pat	7/19/2016	Form Letter 2
Chandler, Robyn	7/19/2016	Form Letter 2
Chocklett, Blane	7/19/2016	Form Letter 2
Clarkson, Robert	7/19/2016	Form Letter 2
Coffey, Jessica	7/19/2016	Form Letter 2
Conrad, Bri	7/19/2016	Form Letter 2
Cruise, Jonathan	7/19/2016	Form Letter 2
Dan, Cecilia	7/19/2016	Form Letter 2
Dan, Cleo	7/19/2016	Form Letter 2
Dent, William and Judith	7/19/2016	Original
Dodson, Alfred	7/19/2016	Form Letter 2

Name	Date Received	Staff Comments
Forcke, Lisa	7/19/2016	Form Letter 2
Fox, Chris	7/19/2016	Form Letter 2
Gamlin, Pam	7/19/2016	Form Letter 2
Haselhorst, Justin	7/19/2016	Form Letter 2
Hawkins, Ben	7/19/2016	Original
Hill, Diane	7/19/2016	Form Letter 2
Hoffman, Katherine	7/19/2016	Form Letter 2
Hudgins, Zachary	7/19/2016	Form Letter 2
Joseph, Elizabeth	7/19/2016	Form Letter 2
Keefer, Paul	7/19/2016	Form Letter 2
Kenney, Christian	7/19/2016	Form Letter 2
Knight, Edward	7/19/2016	Form Letter 2
Lahet, Sue	7/19/2016	Form Letter 2
Lewis, Jackie	7/19/2016	Form Letter 2
Long, Tim	7/19/2016	Form Letter 2
Luiso, Salvatore	7/19/2016	Form Letter 2
McAloon, Kate	7/19/2016	Form Letter 2
McCord, Jim	7/19/2016	Form Letter 2
McDermott, Michael	7/19/2016	Form Letter 2
Moran, Mike	7/19/2016	Form Letter 2
Moss, John	7/19/2016	Form Letter 2
Ostrander, Mike	7/19/2016	Original
Peters, Clinton	7/19/2016	Form Letter 2
Peters, Danielle	7/19/2016	Form Letter 2
Pettit, Bryan	7/19/2016	Form Letter 2
Picone, Steve	7/19/2016	Form Letter 2
Pike, Jennifer	7/19/2016	Form Letter 2

Name	Date Received	Staff Comments
Pinckney, George	7/19/2016	Form Letter 2
Rice, April	7/19/2016	Form Letter 2
Rieben, Elizabeth	7/19/2016	Form Letter 2
Ross, Rogard	7/19/2016	Form Letter 2
Ryan, Jean	7/19/2016	Form Letter 2
Sanford, Sarah	7/19/2016	Form Letter 2
Saunders, Ruth	7/19/2016	Form Letter 2
Schettine, Alex	7/19/2016	Form Letter 2
Schick, Max	7/19/2016	Form Letter 2
Seagraves, Bradford	7/19/2016	Form Letter 2
Skirbunt-Kozabo, William	7/19/2016	Form Letter 2
Solomon, Peter	7/19/2016	Form Letter 2
Springe, Kimberley	7/19/2016	Form Letter 2
Stewart, John	7/19/2016	Form Letter 2
Street, Sydna	7/19/2016	Form Letter 2
Sutch, Aaron	7/19/2016	Form Letter 2
Trivizas, Andrew	7/19/2016	Form Letter 2
Usry, Deborah	7/19/2016	Form Letter 2
Whalen, Teresa	7/19/2016	Form Letter 2
Wood, Robert	7/19/2016	Form Letter 2
Archer, Nancy	7/20/2016	Form Letter 2
Beazley, Shaun and James	7/20/2016	Form Letter 3
Brown, Diane	7/20/2016	Form Letter 2
Burke, Rod	7/20/2016	Form Letter 2
Clark, James	7/20/2016	Form Letter 2
Clarke, Eva	7/20/2016	Form Letter 2
Clute, Sylvia	7/20/2016	Form Letter 2

Name	Date Received	Staff Comments
Crawford, Dan	7/20/2016	Form Letter 2
Curran, Joseph	7/20/2016	Form Letter 2
Epes, Chuck and Debbie	7/20/2016	Original
Frank, Sarah	7/20/2016	Form Letter 2
Frost, Kim	7/20/2016	Form Letter 2
Graham, Annette	7/20/2016	Form Letter 2
Hall, Emily	7/20/2016	Form Letter 2
Hillsman, Therese	7/20/2016	Form Letter 2
Kellogg, Tim	7/20/2016	Form Letter 2
Kelly, Vonda	7/20/2016	Form Letter 2
Lawson, Mark	7/20/2016	Form Letter 2
Layman, Tim	7/20/2016	Form Letter 2
Lindner, Janal	7/20/2016	Form Letter 2
Loughran, Maria	7/20/2016	Form Letter 2
Martin, Susan	7/20/2016	Form Letter 2
McKittrick, David	7/20/2016	Form Letter 2
Miller, Logan	7/20/2016	Form Letter 2
Moody, Terry	7/20/2016	Form Letter 2
Myers, Jane	7/20/2016	Form Letter 2
Nauman, Ilana	7/20/2016	Form Letter 2
Paisley, Janet	7/20/2016	Form Letter 2
Pakurar, Thomas	7/20/2016	Original
Place, Kelly	7/20/2016	Form Letter 2
Pless, Sarah	7/20/2016	Form Letter 2
Roach, Beth	7/20/2016	Form Letter 2
Rollston, Kenneth	7/20/2016	Form Letter 2
Ross, David	7/20/2016	Form Letter 2

Name	Date Received	Staff Comments
Shoop, Sara	7/20/2016	Form Letter 2
Vincent, Brian	7/20/2016	Form Letter 2
Wright, A	7/20/2016	Form Letter 2
Anderson-Ellis, Eugenia	7/21/2016	Original
Beall, Corrina	7/21/2016	Form Letter 1
Benforado, Nate	7/21/2016	Original, on behalf of SELC and JRA
Berry, Adam	7/21/2016	Form Letter 1
Broaddus-Crutchfield, Frances	7/21/2016	Original
Broder, Robin	7/21/2016	Form Letter 2
Bromley, Ben	7/21/2016	Form Letter 2
Butler, Sara	7/21/2016	Form Letter 2
Chase, Amanda	7/21/2016	Original, Senator Amanda Chase
Chocolate, Heidi	7/21/2016	Form Letter 2
Crawford, Kendyl	7/21/2016	Form Letter 1
Davis, Jamison	7/21/2016	Form Letter 2
Davis, Rhonda	7/21/2016	Form Letter 2
Doyle, Justin	7/21/2016	Form Letter 2
Ellis, Howard	7/21/2016	Form Letter 3
Gillispie, Dana	7/21/2016	Form Letter 2
Jackson, Cameron	7/21/2016	Form Letter 2
Jarjoura, Zachary	7/21/2016	Form Letter 1
Johnson, Melissa	7/21/2016	Form Letter 2
Johnson, Erik	7/21/2016	Form Letter 2
French, Robert	07/21/2016	Original
Kirchner, Jane	7/21/2016	Original
Lee, Bridget	7/21/2016	Original, on behalf of the Sierra Club
Lewis, Diane	7/21/2016	Form Letter 2

Name	Date Received	Staff Comments
Lockwood, Trieste	7/21/2016	Original, on behalf of the Virginia Conservation Network
Lopez-Herrera, Jazmin	7/21/2016	Form Letter 1
Madden, Leslie	7/21/2016	Form Letter 2
McCall, Jackie	7/21/2016	Form Letter 2
McKelvey, Keith	7/21/2016	Form Letter 2
Morris, Elli	7/21/2016	Form Letter 2
Moser, John	7/21/2016	Form Letter 2
Newton, Bryan	7/21/2016	Form Letter 2
Ponton, Sharon	7/21/2016	Original, on behalf of the Blue Ridge Environmental Defense League
Rivera, Aileen	7/21/2016	Form Letter 3
Roberson, David	7/21/2016	Form Letter 2
Roller, Ken	7/21/2016	Original, on behalf of Dominion VA Power
Sabean, Kathryn	7/21/2016	Form Letter 2
Sanner, Peggy	7/21/2016	Original, on behalf of the Chesapeake Bay Foundation
Simon, Camilla	7/21/2016	Form Letter 2
Sims, Jessica	7/21/2016	Original
Torbeck, Mary-Stuart	7/21/2016	Form Letter 1; Original, on behalf of the Sierra Club
Twente, Luke	7/21/2016	Form Letter 2
Twente, Graham	7/21/2016	Form Letter 2
Weiss, Jordan	7/21/2016	Form Letter 2

Form Letter
1 - sample
of 566

Bryan, Joseph (DEQ)

From: KnowWho Services <noreply@knowwho.services>
Sent: Sunday, June 19, 2016 10:02 AM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: DEQ: Coal ash should not be left in unlined landfills

Dear Joseph Bryan,

I am extremely disappointed that the Virginia DEQ proposes to allow Dominion to leave coal ash permanently in place where pollutants such as arsenic can continue to leach into groundwater and nearby surface waters. Utilities in nearby states are excavating coal ash and moving it into properly lined landfills where it can be kept safely away from groundwater and surface water. Allowing Dominion to leave coal ash in unlined pits forever allows toxic pollutants to end up in the James and Elizabeth Rivers, which both flow into the Chesapeake Bay. We hope that DEQ and Dominion will reconsider this ill-advised plan. Going forward, I would like to see DEQ require that all coal ash pits in Virginia be closed by excavating the ash and moving it to safe, dry and lined storage away from waterways. Simply capping coal ash pits is not a viable option for closure and will not stop ongoing pollution or protect against the possibility of catastrophic structural failure in the future. Complet e excavation and removal to modern landfills, or "clean closure," is the only way to make sure that we prevent another coal ash disaster and eliminate ongoing pollution.

Sincerely,

Lorenz Steininger
13 Main St
Stafford, VA 22554-
schreibdemstein@posteo.de
1111111111

Form letter
2 - sample
06 119

Bryan, Joseph (DEQ)

From: Jessica Coffey <actions+645162@muster.com>
Sent: Tuesday, July 19, 2016 4:38 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Protect the James

Dear Joseph Bryan,

I want to stress the importance of protecting the James River, the species that rely on it and the citizens that live within its watershed.

I believe that the current draft permit should be revised to adequately protect the James River.

DEQ should require Dominion to pre-treat the water at levels sufficient to protect fish and aquatic wildlife before the water is released into the river.

Thermal discharge limits should be set to protect aquatic life and other designated uses. New technologies, such as a cooling tower, should be considered at the plant to reduce the amount of water drawn from the river and limit thermal discharge impacts.

Technologies should be implemented during the five-year permit cycle to minimize aquatic organism impingement and entrainment at Chesterfield Power Station's water intake – simply studying the issue for this permit cycle is not enough.

The presence of Atlantic sturgeon in the river near Chesterfield Power Station calls for added scrutiny of the VPDES permit, to ensure the best technology available is used for each level of wastewater treatment.

I believe that it is essential for increased protections be built in to the currently proposed Chesterfield Power Station permit to address these issues.

Thank you for taking the time to address these concerns.

Sincerely,

Jessica Coffey
3 Tow Path Circle
Richmond, VA 23221
8044056724

Form Letter
3 – sample
of 3

Bryan, Joseph (DEQ)

From: Chesapeake Energy Center Water Permit (DEQ)
Sent: Thursday, July 21, 2016 3:20 PM
To: Bryan, Joseph (DEQ)
Subject: FW: Coal ash permit – Chesterfield

Hi Joseph,

Another one for you.

Thanks,
Susan

From: Howard Ellis [mailto:howardwellis@aol.com]
Sent: Thursday, July 21, 2016 2:08 PM
To: Chesapeake Energy Center Water Permit (DEQ)
Subject: Coal ash permit – Chesterfield

:As written, the permit would allow this facility to discharge pre-treated wastewater that still contains arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc and other leachate toxins at levels known to harm aquatic wildlife. The permit claims to further dilute these toxins using a "mixing zone." In other words, the James River itself dilutes these heavy metals to safe levels. But the mixing zone itself - located just down river from us - would have peak levels. We ask that the mixing zone be eliminated and that the revised permit require use of established pre-treating methods to bring water toxicity below the known threshold for biological risk to fish and other aquatic wildlife.

- The current draft would also allow to releases of water into the James River water that is at temperatures high enough to harm aquatic life, including the James' newly rediscovered sturgeon

population. We ask that the next draft require further cooling to established levels of safety.

- The current draft of this permit provides for 30 years of care, but the heavy metals we're discussing will be as dangerous in 30 years as they are today. Please revise this draft to include a long-view plan for ongoing site monitoring and

Howard W Ellis

Bryan, Joseph (DEQ)

From: Julianne Condrey <jcondrey@amandachaseforsenate.com>
Sent: Thursday, July 21, 2016 6:38 PM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Jenkins, Angela (DEQ); Paylor, David (DEQ)
Subject: Virginia Electric and Power Company, Draft VPDES Permit Number VA0004146

I appreciate the opportunity to comment on the draft VPDES Permit Number VA0004146. As a representative of citizens of Chesterfield County in the Virginia Senate, I am concerned that the draft permit has the potential to impact my constituency as well as resources that are important to all Virginians, including the James River and Henricus Historical Park.

I would ask that the information provided by those individuals and organizations that have concerns about water quality standards, be thoroughly reviewed and considered during this permitting process. Public safety and the well-being of the citizens are the first and foremost objective, while being good stewards of our natural resources. We also ask that you take into account the needs of the citizens for reliable, cost-effective power, which will affect their overall well-being.

Thank you for your time and consideration. I am available to discuss this topic at your convenience.

Sincerely,

Senator Amanda Chase

Virginia Senate, District 11

district11@senate.virginia.gov

Bryan, Joseph (DEQ)

From: Thomas Pakurar <handsacrossthelake@comcast.net>
Sent: Wednesday, July 20, 2016 1:51 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Permit Comments due 7/21/2016
Attachments: Sampling in Farrar Gut.pdf; CEN A New Life For Coal Ash copy February 15, 2016 Issue - Vol. 94 Issue 7 Chemical & Engineering News.pdf

Permit comments below:

1. Samples of James River water near the discharge outfalls of the Chesterfield Power Plant taken 4/5/16 by HAL (after 0.26" rain) and 10//2015 by Duke University show toxic levels of arsenic, chromium and lead in the water. Sampling data, details of collection and analysis was submitted to Kyle Winter, P.E. of DEQ on July 5, 2016 and are attached to this email to be made part of the public comments.

2. Please investigate the 4/5/16 sample incident and advise me of the results of the investigation. The samples were taken after 0.26 inches of rain had fallen that day.

3. If appropriate please suggest legislative changes needed to prevent recurrence.

4. Simplify the data taken for the permit by using direct measurements (versus calculations) of metal toxins taken at the interface between private and public property. Use the format of Permit No. VA0060194 for Proctors Creek Wastewater Treatment Plant next door on the James.

5. Require taking discharge data or a visual sample at all process and stormwater discharge outlets after each rainfall of 1/4 inch or more to ensure a quick response if there is a water quality violation.

6. Specify more stringent stormwater standards, like those in Appendix 1, that will coalesce the mico-sized particles in fly ash into larger agglomerates that would be better managed by the stormwater regs. It is important to require full treatment of wastewater prior to being discharged into the James River.

7. Specify strong protections for endangered species such as the Atlantic Sturgeon fish.

8. Specify rules that encourage encapsulation of all flyash or its removal from flood plain storage.

I have attached the following files as part of this public comment:

Sampling in Farrar Gut: letter to DEQ Kyle Winters, 7/5/16;
C&EN News, 94:7, pp 10-14, February 15, 2016, "A New Life for Coal Ash."

Sincerely,

Thomas A. Pakurar, Ph.D.
Vice President - Science & Technology
Hands Across the Lake
P.O. BOX 1752
Midlothian, VA 23213
handsacrossthelake@comcast.net

Hands Across the Lake is a community based organization that tries to achieve win-win scenarios for business, public health and the environment.

Volume 94 Issue 7 | pp. 10-14
Issue Date: February 15, 2016

COVER STORY

A New Life For Coal Ash

Sustainability: Electric utilities, environmentalists, researchers, and regulators converge on sustainable solutions for recycling waste from coal-fired power plants

By Stephen K. Ritter

Department: **Science & Technology**
News Channels: **Materials SCENE**, **Environmental SCENE**
Keywords: **coal ash**, **recycling**, **concrete**, **wallboard**, **sustainability**

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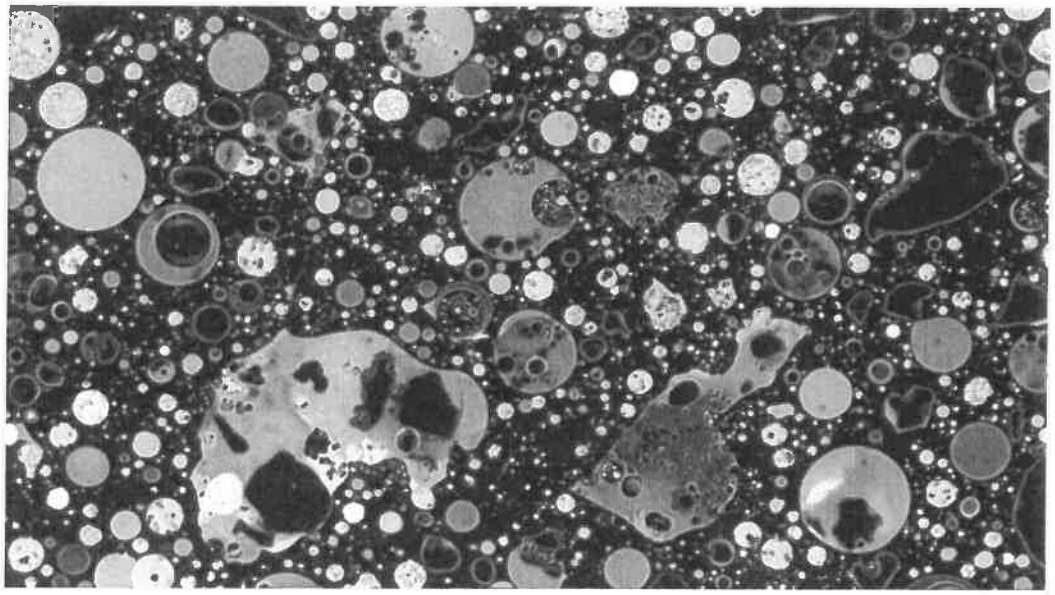

INSIDE ASH
Fly ash particles have a glasslike quality and are generally spherical, ranging in size from 0.5 μm to 300 μm, as shown in this SEM image.
Credit: Wikimedia Commons

In December 2008, a dike collapsed at a waste storage pond at the Tennessee Valley Authority's **Kingston power plant** in northeastern Tennessee. The incident released more than 3.8 billion L of water containing 4.1 million m^3 of coal ash, which is the cremated remains of burning coal. The spill inundated several homes and contaminated the Emory River. The cleanup, which took until 2015 to complete, cost $1.1 billion.

The Kingston incident points to modern society's biggest dilemma: In pursuit of our greatest need—generating electricity—we generate an unsustainable amount of pollution. In the case of burning coal, we regularly lament the amount of carbon dioxide being pumped into the atmosphere. But we tend to forget that other substances emitted by burning coal—including sulfur, mercury, and coal ash—are piling up on the ground.

Coal ash is the second-largest waste material in the U.S. behind household trash. Utility companies and the ash management firms working for them struggle to find economic ways to get rid of it. In the U.S., about half of the material is recycled in useful applications such as making concrete and gypsum wallboard. But the volume of coal ash produced and the economics of handling

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Digging Through New Types Of Waste To Recycle Metals

it is such that the other half must be disposed of as waste.

That means keeping it in large storage ponds like the one at Kingston or buried in landfills, which if not managed properly can **leak out contaminants over time** and cause an array of environmental problems. Power companies, environmental groups, scientists and engineers, and legislators and regulators have converged to come up with mutually acceptable solutions.

But finding such solutions has proved difficult. On one hand, anticoal environmental advocacy groups say coal ash poses unacceptable health and environmental risks and the best solution is to treat it as hazardous waste and lock it all away in lined ponds and capped landfills. The alkaline ash contains small amounts of toxic dioxins and polyaromatic hydrocarbons, along with traces of toxic metals—substances that could end up in drinking water.

On the other hand, utility companies say the best solution for the disposal problems, which will also help manage their operating costs, is to quit throwing coal ash away. Instead they want help finding affordable, value-added uses for the material.

The Environmental Protection Agency has been caught in the middle. EPA has spent decades evaluating coal ash safety. Sparked by the Kingston disaster, the agency developed **a new set of rules** that went into effect in October on coal ash management under the Resource Conservation & Recovery Act, which is the nation's primary law on handling solid waste.

The rules continue to regulate coal ash as nonhazardous solid waste as before. In tests, contaminants in the ash rarely breach federal hazardous waste criteria, such as exceeding safe levels for drinking water. What's new is that the rules stipulate more stringent standards for handling and disposing of coal ash and clarify how the rules will be enforced. The results, so far, seem to have left all parties involved in the issue unsatisfied.

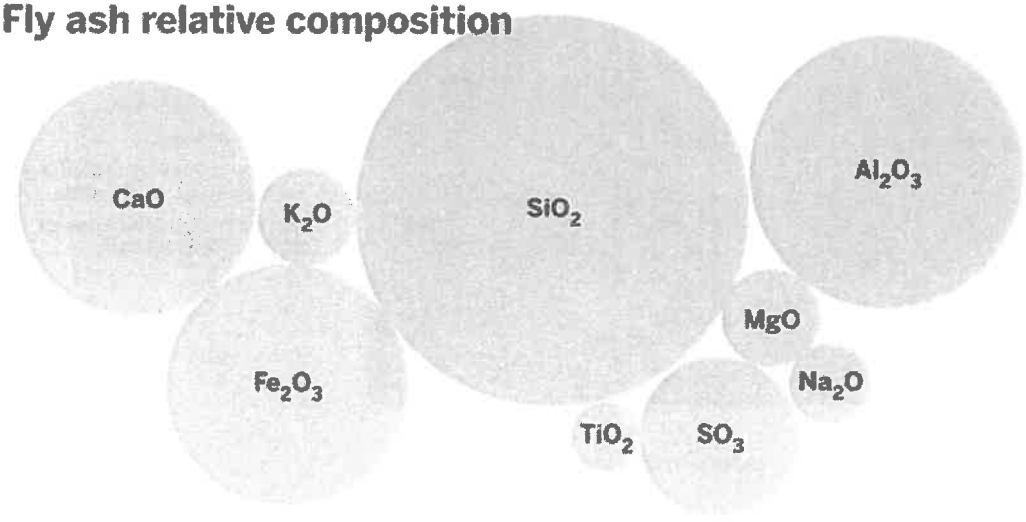
Marc Yaggi, executive director of the **Waterkeeper Alliance**, was blunt in his criticism. "How could EPA conclude that coal ash, which is loaded with carcinogens, including arsenic, cadmium, and chromium, is not a hazardous waste?" he said in a statement in response to the EPA announcement. "The rules fall far short of what is needed."

"The regulatory uncertainty over the years has caused more ash to be disposed of rather than recycled," counters **Thomas H. Adams**, executive director of the **American Coal Ash Association** (ACAA), an industry group. "It's been more about political science than real science."

NOTE: All graphic data reported in short tons (1 short ton = 0.9 metric tons).

COAL ASH BY THE NUMBERS

Fly ash relative composition

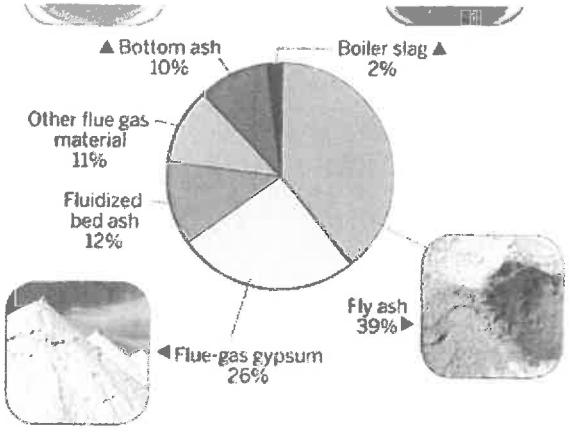


Trace elements[a]: Ba, Sr, B, Mn, Zn, V, Cr, As, Pb, Ni, Cu, Mo, Tl, Be, U, Se, Sb, Cd, Hg

NOTE: Circles represent mean concentrations for various fly ash samples, for example, SiO_2 = 215,000 mg/kg.
a In order of relative abundance. **SOURCE:** Electric Power Research Institute

Coal ash breakdown

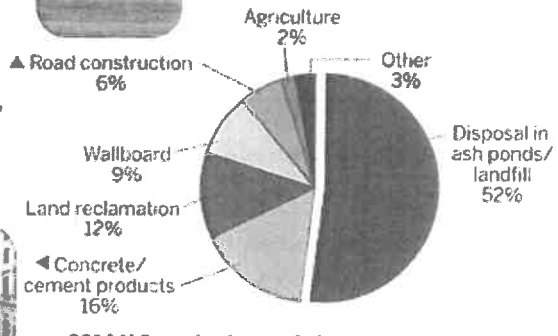
Coal ash is the **second-most abundant**



2014 U.S. coal ash production = 129.7 million tons per year

This Asheville, N.C., airport taxiway was constructed with coal ash fill.

The Ronald Reagan building in Washington, D.C. was built with coal ash concrete.



2014 U.S. coal ash recycled = 62.4 million tons, 48%

SOURCE: American Coal Ash Association

abundant waste material in the U.S. behind household trash.

About 1.5 billion tons of coal ash are currently stockpiled in the U.S.

Burning 4 to 8 tons of coal produces 1 ton of coal ash.

World coal consumption, million tons

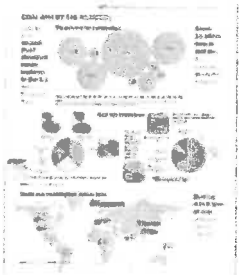
NOTE: Data from 2012. **SOURCE:** U.S. Energy Information Administration

Zooming In On Coal Ash

Coal ash is the mineralized residue left over from burning coal to generate electricity. It's actually a collection of different types of materials, called coal combustion products or coal combustion residuals: fly ash, flue gas desulfurization products, bottom ash, and boiler slag. The type and

[+]Enlarge

amount produced depends on the kind of coal used and the type of furnace and combustion process.



PDF DOWNLOAD
Download a PDF of the graphic above **here**.

According to ACAA, in 2014 U.S. coal power plants generated **129.7 million tons of coal ash**. Of that amount, 62.4 million tons of the material, or 48%, was recycled. The remainder was disposed of in storage ponds or landfills.

Elsewhere in the world, coal ash management varies from country to country, ACAA's Adams notes. In some European countries, such as Denmark, where there is no landfill space, all the ash is recycled. China provides subsidies to promote coal ash recycling, reaching recycling rates of 60%, according to the Asian Coal Ash Association. But the country produces about five times as much coal ash as the U.S., meaning a large volume of material is still treated as waste.

Scientists have poked and prodded coal ash for at least a century seeking remedies. Fly ash, the most abundant material, is a fine powder made up of particles that are trapped by electrostatic precipitators or fabric filters as flue gas from a coal furnace makes its way to a smokestack.

The ash is primarily made up of silicon, aluminum, calcium, and iron oxides, with lesser amounts of other metal oxides and sulfur. It also contains traces of mercury, cadmium, chromium, lead, arsenic, and other metals, as well as boron, nitrates, and fluoride. The composition is similar to common rocks and soils, as well as volcanic ash, which has been used as a construction material as far back as the ancient Romans.

Today, about half the concrete produced in the U.S. contains some fly ash—up to 40%—as a substitute for limestone-based portland cement. Among other applications, fly ash is used as material to make bricks, ceramic tiles, and plaster; as filler in metal and plastic composites and in paints and adhesives; and as structural fill for road construction.

Flue gas desulfurization products rank as the second most abundant type of coal ash. Utilities install equipment, commonly known as scrubbers, to trap sulfur oxides, nitrogen oxides, and **other pollutants**—emissions that contribute to acid rain and other environmental problems. In the case of sulfur, when the flue gas contacts a calcium-based sorbent such as limestone in a scrubber, the reaction forms hydrated calcium sulfate ($CaSO_4 \cdot 2H_2O$), or gypsum. A host of other flue gas desulfurization materials are formed in various other scrubbers.

The synthetic gypsum is used like natural mined gypsum to produce wallboard, also known as drywall or Sheetrock. About half of wallboard manufactured in the U.S. is produced from power plant gypsum, according to ACAA. The recovered gypsum is also used in agriculture as a soil conditioner and to neutralize acidic soils.

Among other coal ash materials, bottom ash is a coarse material too large to float in the flue gas, so it falls through grates into a hopper in the bottom of the coal furnace. It's typically used as filler in concrete and as fill material for road construction. Boiler slag is molten bottom ash that turns into pellets with a smooth glassy appearance after it is cooled with water. It's useful as grit for sandblasting and polishing, roofing shingles, filler in asphalt, and a substitute for sand in snow and ice traction control.

Beyond these large-scale uses, there are few economic opportunities for recycling coal ash, Adams says. China extracts aluminum from coal ash. And the U.S. and China are also looking at whether it's **practical to extract other metals**, such as rare-earth elements for electronics, uranium for nuclear power, and lithium for batteries—even gold. But these trace-metal extractions would require sifting through thousands of tons of ash to garner usable amounts of the metals, and the extracted ash would still remain.

Regulatory Dilemma

Since the 1980s, EPA has periodically issued reports concluding that coal ash is not hazardous and doesn't need to be regulated as such. The agency has set up guidelines for handling coal ash as solid waste, similar to household trash, and has encouraged recycling. How the waste is actually handled is left up to individual states, subject to EPA approval.

The regulatory process has been fraught with contentious debate, as utility companies and environmental advocacy groups have sought the upper hand in their arguments for and against coal ash. The points of conflict include the hazardous/nonhazardous designation and how the regulations should be enforced—at the federal level or the state level. The current laws governing coal ash management rely on so-called citizen lawsuits, in which individuals or groups who believe violations are occurring must go to court to force EPA, the states, or utilities to abide by the rules.

Meanwhile, coal ash has been piling up. According to EPA, unused coal ash in the U.S. is currently disposed of in more than 735 ponds averaging more than 50 acres in size with an average depth of 6 meters, and in more than 310 landfill sites averaging 120 acres in size and an average depth of 12 meters. According to ACAA, roughly 1.5 billion tons of coal ash are already socked away. As environmental incidents involving coal ash storage began increasing in frequency starting in the 1990s, EPA was increasingly pressed to act further. The 2008 Kingston spill was the straw that broke the camel's back.

So after further study, last year EPA updated its coal ash rules. Aside from reinforcing the agency's nonhazardous waste determination, and leaving the door open for recycling, the rules call for remediating existing ash ponds and landfills that fail to meet the new disposal standards. For example, sites without impermeable liners to prevent material leaching into groundwater will need to be closed. That means the millions of liters of water in ponds will be removed and treated, then likely diverted into nearby streams. The ash that remains will be shunted off into recycling applications or moved to new lined landfills.

Electric utilities welcome the new rules as helpful, because the rules will open the damper on recycling efforts, ACAA's Adams explains. If coal ash were labeled hazardous, he says, utilities likely would forgo recycling and dispose of the material as waste to avoid liability for its use in new products.

Even so, the ability to use coal ash still depends on the quality of the material and the results of a cost-benefit analysis, Adams notes. On the plus side, anytime coal ash is used in lieu of a virgin natural material such as portland cement, it reduces a portion of the fossil energy required, pollution generated, and ecological burden to mine, transport, and process those materials. For example, for every ton of fly ash used in place of portland cement, about 1 ton of CO_2 emissions is eliminated, Adams says, citing EPA estimates. That's equivalent to about two months' emissions from an automobile. But there's a short leash on those benefits, Adams adds. Companies must invest in infrastructure to use coal ash in concrete and wallboard, he explains, and if a company has to transport ash more than about 80 km for structural fill applications, it sometimes isn't worth the effort and the company must dispose of the ash instead.

Beyond the economics, fly ash is beneficial in construction and as structural fill for its physical properties. For example, its composition reduces the amount of cement and water needed to make concrete and produces denser concrete with improved mechanical and chemical properties that make it stronger and more durable. For example, fly ash can nearly double the life of a highway, according to ACAA. And for synthetic gypsum, the material made at power plants is typically higher purity than mined gypsum, making it preferable for wallboard.

"We have by no means hit the ceiling in terms of market potential for coal ash," Adams says. "Now that we have regulatory certainty, investment will start moving back into the infrastructure we need to grow coal ash recycling," he notes. "That's good news for the coal ash industry."

New Opportunities

One potential use for coal ash, ironically, is to help clean up old coal mines. Civil engineers **Tarunjit S. Butalia** and **Chin-Min Cheng** of Ohio State University are studying whether flue gas desulfurization materials could be used to mitigate acidic drainage from hundreds of abandoned coal mining operations in their state.

After a mine is abandoned, groundwater continues to percolate through boundaries in coal seams, picking up minerals, most commonly pyrite (FeS_2), Butalia and Cheng explain. Once exposed to air, either in a tunnel underground or dripping from a high exposed mine wall aboveground, pyrite converts into ferrous iron (Fe^{2+}) and sulfuric acid (H^+ and SO_4^{2-}), **creating an acidic brew.** If not contained, the drainage can seep into groundwater or into streams, harming the environment.

As part of Ohio's ash management plan, Butalia and Cheng are focusing on high-volume applications for the claylike desulfurization materials, such as using it as a treatment filter to remediate mine drainage. They found in lab tests that as acidic mine water passes through the alkaline material, the water is neutralized and many of the dissolved trace elements adsorb or precipitate and are trapped. The water that comes out the other side isn't perfectly clean, Cheng says, but the amounts of heavy metals of concern that remain are similar to those in streams or groundwater and typically below limits set for drinking water.

Butalia and Cheng are directing a test project in which some 500,000 tons of sulfite flue gas material from American Electric Power's Gavin Power Plant will be used to sop up acid mine drainage at an abandoned coal mine near the Ohio River. A layer of the material some 300 meters long and up to 60 meters wide will be placed against the mine wall to serve as a barrier through which the drainage must pass. The researchers estimate the barrier will provide more than 50 years of treatment capacity.

The circular nature of what they are doing hasn't escaped the Ohio State engineers. "The problems that arose before coal mining was regulated are now being addressed by using residues that come from burning coal," Butalia says. "These abandoned mine sites are an eyesore, a safety hazard, and an environmental liability for the state. The coal-combustion by-products are the same for utility companies. By diverting material that would otherwise go to a landfill and instead using it to improve the environment, we are addressing two problems with a synergistic solution."

Despite coal ash's promise, the environmental concerns of using the material are not going away. There's a case to be made for recycling coal ash into useful products, the Waterkeeper Alliance's Yaggi tells C&EN. "But it's our strong preference that coal no longer be burned to create electricity in the first place. Renewable energy has proven itself to be a viable alternative to dirty fossil fuels. That said, there is an enormous amount of coal ash, and current disposal methods leave waterways and communities at risk.

"We believe that encapsulated recycling of fly ash into concrete, if done properly, reduces the leaching of toxic materials and is the least environmentally problematic option," Yaggi continues. Unencapsulated recycling options for coal ash, including use in structural and mine fill, or as fertilizer or other agricultural materials, "pose unacceptable risks that we cannot endorse."

The Challenges Ahead

On Feb. 2, 2014, an aging storm drain ruptured at a coal ash pond at Duke Energy's retired **Dan River Steam Station** in Eden, N.C. The equipment failure sent some 132 million L of water laden with 70,000 tons of coal ash into the Dan River during the course of a week, fouling 100 km of the waterway. Duke Energy, following its 2012 merger with Progress Energy, is now the U.S.'s largest electric utility company.

Duke Energy and its predecessors have been criticized for years by environmental groups in the region for their handling of coal ash, including being unresponsive to leaky ash ponds at multiple sites. The environmental groups have also been up in arms over what they consider lax oversight by the **North Carolina Department of Energy & Natural Resources**. Duke Energy and the state are now being forced to act, and their case exemplifies the challenges that lie ahead for coal ash.

In February 2015, Duke Energy was charged by federal authorities for violating the Clean Water Act and other regulations stemming from improper disposal of coal ash at multiple sites in North Carolina. The company entered a plea agreement to settle the matter with a $102 million payment. The company has $121 billion in assets.

To address the charges and to meet updated federal and state coal ash rules, **Duke Energy has created a plan** to close and remediate all 32 of its coal ash ponds in North Carolina, says company spokeswoman Catherine H. Butler. Deciding what to do with all the material isn't a snap. Each site is unique, requiring a customized solution for dewatering ponds and removing the ash, all while protecting groundwater and the surface environment, Butler says. The company anticipates spending as much as $10 billion over 30 years for the remediation.

"As we develop our ash basin closure plans, our goal is to find opportunities to reuse that ash, rather than rebury it," Butler says. "And we are staying focused on our operating plants to increase the amount of ash recycled from them, so it doesn't have to be stored away."

For example, 3 million tons of Duke Energy ash currently stored in basins is being removed by **Charah**, a construction company that specializes in coal **ash management**. The ash is being used as structural material in lined basins to fill in **two open-pit clay mines** used by brick manufacturers in central North Carolina. The remediated land could be repurposed for future development, perhaps as an industrial site. In another project, Charah is placing more than 4 million tons of ash in a lined structural fill at the **Asheville Regional Airport** to build a new taxiway. "These three projects allow for a large amount of ash to be recycled in a short time frame," Butler says.

Duke Energy currently recycles 47% of the ash it produces at working coal power plants company-wide, but only 30% in North Carolina, both figures that the company aims to increase, Butler adds. Much of the coal ash goes to make concrete, she says. The company also has gypsum recycling operations at most of its operating coal plants. One exception is the company's plant in Edwardsport, Ind., where 99.9% pure sulfur is extracted from the flue gas. Duke Energy sells the sulfur into the chemical and fertilizer markets.

"That's a large portion of our ash that is not going into our ash basins," Butler says. "But we're aggressively exploring ways to safely reuse even more."

As part of its state regulatory requirements, Duke Energy has engaged the Electric Power Research Institute, a nonprofit R&D firm, to conduct a study, expected to be completed midyear, to understand the market demand for recycling coal ash with current uses and to identify emerging technology opportunities.

A Duke Energy team is already researching additional means to make coal ash more suitable for recycling, Butler notes. But the company has to balance cost and regulatory requirements, she explains. For example, to meet restrictions on nitrogen oxide and other emissions and still provide cheap power to benefit customers, power plants are sometimes limited in the type of coal they use and how they burn it. The combustion therefore might be incomplete, leaving unburned carbon in the ash. That can be a problem, because less than 2% carbon content is required to make concrete. "If we can't burn all the carbon out of the coal, the ash may not be suitable for recycling," Butler says.

The company is pursuing thermal beneficiation technology that would burn out the carbon to an acceptable level, allowing for both new and old ash to be treated and used in concrete products, Butler says. But the added cost could tip the scales against recycling. She concedes: "It's part of the push and pull of coal ash."

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Comments

Glenn (February 16, 2016 11:16 AM)
It's amazing how this coal ash is thrown into so many different products. Did the US and EPA not learn anything from the widespread use of asbestos when it was considered harmless.
» Reply

Steve Ritter (February 17, 2016 11:26 AM)
Thanks for your comment. It would seem encapsulating coal ash in concrete and roadway beds is a reasonable thing to do. As you note, the problem is when you disturb the material, such as tearing down a building, which was also the case with asbestos. Could smart construction, where you could disassemble buildings (wall and floor sections) without smashing them to bits, be the answer?
» Reply

T. Sobisch

Wonder about the idea of dumping ash in ponds under water. This obviously multiplies risk through mobilization of contaminants and flooding of the whole mass. Spraying the surface to avoid release of dust particles should suffice.
Obvious solution to the problem face out coal fired power plants in line with the needs to save our planet. First stage reduce amount of ash to the level of possible recycling.
» Reply

Steve Ritter (February 17, 2016 11:34 AM)
Thanks for your comment. Pumping coal ash into a pond is a cost-effective way to handle the material and as you note keeps the material from becoming dust in the wind. As a silica-based material and being alkaline, fly ash in particular is a lung and skin health hazard. EPA with its new rule accepts ponds as a reasonable way to handle coal ash, but stipulates that companies must do better managing them to prevent environmental impacts. It would be nice to do without coal, but that is not yet practical, it would seem, without giving up some power.
» Reply

Horia Barbu (February 17, 2016 2:47 PM)
I've tried using wood ash to reduce AMD effect in ponds/landfills, and it works (at least at laboratory scale:-))Maybe coal ash could be also use in this respect...
» Reply

Steve Ritter (February 17, 2016 6:00 PM)
Duke Energy has updated its estimate of the Dan River coal ash spill, from 70,000 tons of coal ash entering the river to 30,000 to 39,000 tons. North Carolina officials put it at about 38,000 tons.
» Reply

Phillip Flanders (February 19, 2016 1:38 PM)
I thought this was an interesting article. However, you state that the Ronald Reagan Building in DC was constructed using coal ash concrete, but you chose to show a picture of the William Jefferson Clinton Building, which is EPA's headquarters! I realize that the buildings are on the same block and that could be confusing. As you stated, reusing coal ash in concrete is somewhat common (16%), so are you implying that EPA is hypocritical for having recycled coal ash in its headquarters building, which you mislabeled?
» Reply

Steve Ritter (March 1, 2016 4:07 PM)
Thanks for your comment. Yes, the building shown is the Clinton building. The Reagan and Clinton buildings are on the same block next to each other sharing a courtyard, and both have concave facades on two sides that look similar. Turns out both buildings, as well as other Washington buildings and infrastructure projects, were constructed with concrete made using fly ash, according to ACAA. No implication intended regarding EPA's recycling. The agency likely had little say in the construction materials. EPA encourages reuse of coal ash, and has published a series of Comprehensive Procurement Guidelines recommending the use of various recovered materials. Fly ash for concrete was included in the first one.
» Reply

Warren A. Dick (February 22, 2016 10:47 AM)
An interesting article. There were a few statements that I think need to be corrected. One, the correct term, as you indicate, for all the products created from burning coal for energy is coal combustion products. Gypsum, one such product, does not contain coal ash but the article is misleading in grouping gypsum as an ash product. Two, gypsum does not neutralize acid in soil. This is a common misconception that I seem to have to correct over and over. Gypsum has many benefits in agriculture and farmers are using it to improve soil and water quality. Programs at The Ohio State University involve both engineering and agricultural uses of coal combustion products. Like any other agricultural amendment, use of gypsum must be properly conducted. From my experience, there is a desire to properly recycle coal combustion products from a wide range of groups. The main issue right now seems to be that any use of coal as a fuel is being opposed. One way to do that is to discourage beneficial recycling uses of the coal combustion products.
» Reply

Geoffrey Lindsay (February 28, 2016 10:18 PM)
Steve,
Can you tell us what the levels (ppm) of toxic metals are in fly ash / coal ash; and, for example, how do those levels compare to levels of those same toxic metals in natural gypsum, portland cement, beach sand, etc. To help solve this storage problem, has Congress mandated that coal ash be on all federal infrastructure work such as roads, bridges and buildings?
» Reply

Steve Ritter (March 1, 2016 4:31 PM)
Thanks for asking Geoffrey. It is hard to put a firm number on these levels, because it depends on the type of coal burned, combustion method, and type of coal combustion product. The minor components noted in fly ash in the graphic range from low parts per thousand for barium to low ppm or into the ppb range for uranium. It also is hard to compare those to natural materials, because it depends on the source of natural gypsum and lime and so forth. Congress has not mandated that coal ash be used in federal projects, but EPA encourages reuse of coal ash, and has published a series of Comprehensive Procurement Guidelines recommending the use of various recovered materials.
» Reply

Leave A Comment

Comments by first-time contributors will be reviewed prior to appearing on the site. This review is done by humans and not always immediately. You may be laudatory or critical, but please stay on topic and be respectful of the author and your fellow readers. We reserve the right to remove any comments that are profane, obscene, abusive, or otherwise inappropriate. Email addresses are required so that we can verify you are not a robot overlord and in case we need to contact you about your comment privately. They will not appear on the site.

Name

Email Address(Required to comment)

SUBMIT

From: **Thomas Pakurar** handsacrossthelake@comcast.net
Subject: Re: Sampling in Farrar Gut additional documentation
Date: July 5, 2016 at 8:59 PM
To: Winter, Kyle (DEQ) Kyle.Winter@deq.virginia.gov
Cc: Adamson, Emilee (DEQ) Emilee.Adamson@deq.virginia.gov, Bob Olsen r.e.olsen@verizon.net, Peter N. Martin pnmartin@binary1.com, James Shelton James_Shelton32@yahoo.com
Bcc: Jameson Brunkow jbrunkow@jrava.org

TH

Mr. Winter:

I forgot to include the sampling notes in my previous email. They are now attached:

Jamie Brunkow

Sampling Notes, Dutch Gap Conservation Area
April 5th, 2016

Sample 1A (surface water)
5:40pm
37.370733, -77.382214

Sample 1B (soil)
5:40 pm
37.370733, -77.382214

Sample 2A (surface water)
5:50pm
37.370533, -77.377200

Sample 2B (soil)
5:50pm
37.370533, -77.377200

I believe I have included all the information you requested regarding Hands Across the Lake's sample 4/5/16 in Farrar Gut near the Dutch Gap fly ash storage place called "The Upper Pond." The sample was taken from the James River just downstream of the floating barriers near outfall #4 from the upper pond. Sampling protocols are described below:

!. Clean, new sampling 250 ml bottles were provided by the laboratory 2/29/16. The bottles contained a small quantity of HNO3 stabilizing fluid, and were sealed

HNO3 stabilizing fluid, and were sealed.

2. I provided two 500 ml and two 250 ml sample bottles to the person taking the samples on 3/17/2016.

3. Samples were taken 4/5/2016 at 5:40 pm at location 37.370733, - 77.382214. Sampling notes, and pictures of the sampling site are attached to this email. **HAL Sample ID is JBRU1A; Lab ID is 395425001.**

4. Samples were shipped FedX Ground and arrived 04/14/2016. Copies of the CoC and sample receipt form are attached.

5. In correspondence with the lab dated 3/1/16, the laboratory asked not to be identified by name in any press releases or public information releases. They requested they be referred to as "the lab performing the analysis is Virginia ELAP certified." Accordingly, I am redacting the lab data sheets to remove the laboratory name and address.

6. The sample detection limits for trace metals As, Cr and Pb were set at 1.7, 2.00, 0.500 μg/L respectively.

Additional information attached:

HAL summary data sheet updated 7/5/16
Lab chain of custody sheets
Lab certificate of analysis
Technical Narrative (5 pages)

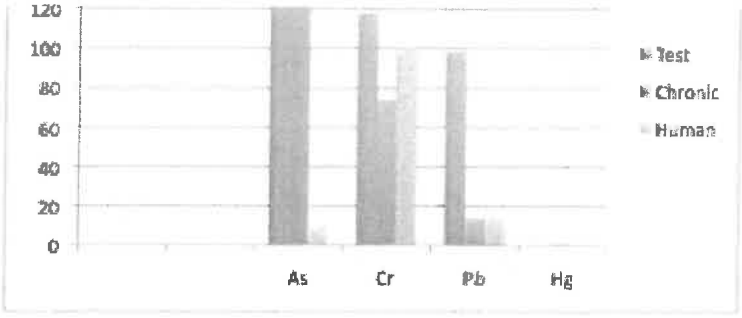
Sincerely,

Thomas A. Pakurar, Ph.D.
Vice President - Science & Technology
Hands Across the Lake
P.O. BOX 1752
Midlothian, VA 23213
handsacrossthelake@comcast.net

Hands Across the Lake is a community based organization that tries to achieve win-win scenarios for business, public health and the environment.

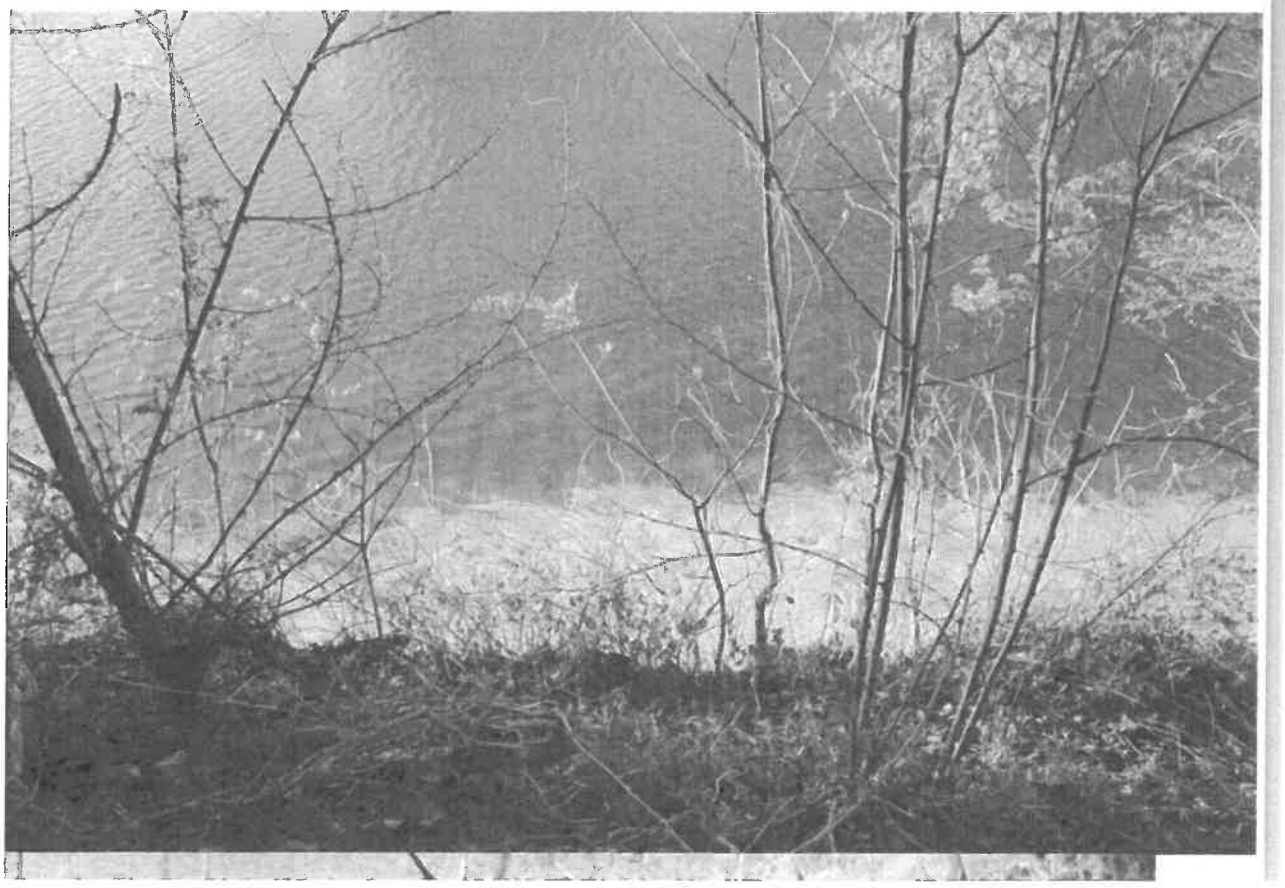
Discharge water Upper Coal Ash Pond
Sample from Public Waters downstream of Outfall #4

Sample ID/ Date	Metal	Test µg/L	Chronic µg/L	Human µg/L
Jbru 1A 4/5/16	As	170	150	10
	Cr	118	74	100
	Pb	98.4	14	15
	Hg	0.094	0.77	



Sample Location: 37.370733, - 77.382214

Thomas A. Pakurar, Ph.D.
Hands Across the Lake
P.O. BOX 1752
Midlothian, VA 23113
2016-07-05



Certificate of Analysis

Report Date: April 28, 2016

Company :	Hands Across the Lake
Address :	P.O. BOX 1752
	Midlothian, Virginia 23213
Contact:	Tom Palurar
Project:	Trace Metals [redacted]16-0240
Client Sample ID:	JBRU 1A
Sample ID:	395425001
Matrix:	Water
Collect Date:	05-APR-16 17:40
Receive Date:	15-APR-16
Collector:	Client

Project: HATL00116
Client ID: HATL001

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	Method
Mercury Analysis-CVAA											
EPA 245 Mercury "As Received"											
Mercury	J	0.094	0.067	0.200	ug/l	1	MTMI	04/20/16	1146	1560787	1
Metals Analysis-ICP-MS											
200.2/200.8 Metals As,B, Cd, Cr, Pb, Mo, Sb, Se,Tl "As Received"											
Antimony	J	1.58	1.00	3.00	ug/l	1	PRB	04/20/16	2020	1560238	2
Arsenic		170	1.70	5.00	ug/l	1					
Cadmium		3.34	0.110	1.00	ug/l	1					
Chromium		118	2.00	10.0	ug/l	1					
Lead		98.4	0.500	2.00	ug/l	1					
Molybdenum		9.34	0.165	0.500	ug/l	1					
Selenium		13.6	1.50	5.00	ug/l	1					
Thallium		3.52	0.450	2.00	ug/l	1					
Boron		289	20.0	75.0	ug/l	5	PRB	04/21/16	1934	1560238	3

The following Prep Methods were performed:

Method	Description	Analyst	Date	Time	Prep Batch
EPA 200.2	ICP-MS 200.2 PREP	JPI	04/15/16	2200	1560237
EPA 245.1/245.2 Prep	EPA 245 Mercury	AXS5	04/19/16	1400	1560786

The following Analytical Methods were performed:

Method	Description	Analyst Comments
	EPA 245.1/245.2	
	EPA 200.8	
	EPA 200.8	

Notes:

tainers for each test)	<-- Preservative Type (6)	Comments Note: extra sample is required for sample specific QC											Level 2 / Level 3 / Level 4 ollection Zone Zone Pacific Other						For Lab Receiving Use Only Custody Seal Intact? YES NO Cooler Temp C

1) Project #:
2) GEL Quote #: [redacted]P-16-0240
3) COC Number (1): HAL COC 2
PO Number: VISA

[redacted] Chain of Custody and Analytical Request

[redacted]

[redacted] Work Order Number: 39C425

Client Name: THOMAS PAKURAR (HAL)	Phone #: 8046394454
Project/Site Name: COAL ASH	Fax #:
Address:	
Collected by:	Send Results To:

Sample Analysis Requested (5) (Fill in the number of con…

Sample ID * For composites - indicate start and stop date/time		*Date Collected (mm-dd-yy)	*Time Collected (Military) (hhmm)	QC Code (2)	Field Filtered (3)	Sample Matrix (4)	Radioactive	TSCA Regulated	Total number of containers
SURFACE	SEDIMENT								
JBRU 1A	JBRU 1B	4.5.16	1740						
JBRU 2A	JBRU 2B	"	1750						
PLOH 1		3.23.16	1730						
PLOH 2	PLOH 2SED	"	"						
PLOH 3		"	1745						
	PLOH B SED	"	"						
JSTO 1 SW	JTSTO1 SD	4.8.16	1800						
JSTO 2 SW	JTSTO2 SD	4.6.16	1730						
JSTO 3 SW	JSTO 3SD JSTO4 SED	4/6/16	1700						

Should this sample be considered: all 16 samples metals and Hg
SD Samples Dry basis

TAT Requested: Normal: Rush: Specify: (Subject to Surcharge) Fax Results: Yes / (No)

Circle Deliverable: C of A / QC Summary / Level 1 / …

Remarks: Are there any known hazards applicable to these samples? If so, please list the hazards
Sample JBRU1A - 15 sample of small micro particles floating on water surface,
SEE special instructions via email. Expect fly ash in sample.
PLOH B

Sample Collection Time Zone: Eastern, Central, Mountain…

Chain of Custody Signatures

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1 J. BRUNKOW	4/7/16	9:02	1 [signature]	4/7/16	9:02
2 F. LOHR	4/8/16	5:40P	2 [signature]	4/5/16	10:05
3 J. Stoneman	4/8/16	10:05	3 [signature]	4/9/16	10:05

Received [signature] 9:10

Sample Shipping and Delivery Details

[redacted]

Method of Shipment: Date Shipped:
Airbill #:
Airbill #:

1) Chain of Custody Number = Client Determined
2) QC Codes: N = Normal Sample, TB = Trip Blank, FD = Field Duplicate, EB = Equipment Blank, MS = Matrix Spike Sample, MSD = Matrix Spike Duplicate Sample, G = Grab, C = Composite
3) Field Filtered: For liquid matrices, indicate with a - Y - for yes the sample was field filtered or - N - for sample was not field filtered.
4) Matrix Codes: DW=Drinking Water, GW=Groundwater, SW=Surface Water, WW=Waste Water, W=Water, SO=Soil, SD=Sediment, SL=Sludge, SS=Solid Waste, O=Oil, F=Filter, P=Wipe, U=Urine, F=Fecal, N=Nasal
5) Sample Analysis Requested: Analytical method requested (i.e. 8260B, 6010B/7470A) and number of containers provided for each (i.e. 8260B - 3, 6010B/7470A - 1)
6) Preservative Type: HA = Hydrochloric Acid, NI = Nitric Acid, SH = Sodium Hydroxide, SA = Sulfuric Acid, AA = Ascorbic Acid, HX = Hexane, ST = Sodium Thiosulfate, If no preservative is added = leave field blank

WHITE = LABORATORY YELLOW = FILE PINK = CLIENT

[redacted]

SAMPLE RECEIPT & REVIEW FORM

Client:
SDG/AR/COC/Work Order:
Received By: H. Taylor
Date Received: 04/9/16

Suspected Hazard Information	Yes	No	
			*If Net Counts > 100cpm on samples not marked "radioactive", contact the Radiation Safety Group for further investigation
COC/Samples marked as radioactive?		✓	Maximum Net Counts Observed* (Observed Counts - Area Background Counts): 0 cpm
Classified Radioactive II or III by RSO?		✓	If yes, Were swipes taken of sample containers < action levels?
COC/Samples marked containing PCBs?		✓	
Package, COC, and/or Samples marked as beryllium or asbestos containing?		✓	If yes, samples are to be segregated as Safety Controlled Samples and opened by the GEL Safety Group.
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: UN#
Samples identified as Foreign Soil?		✓	

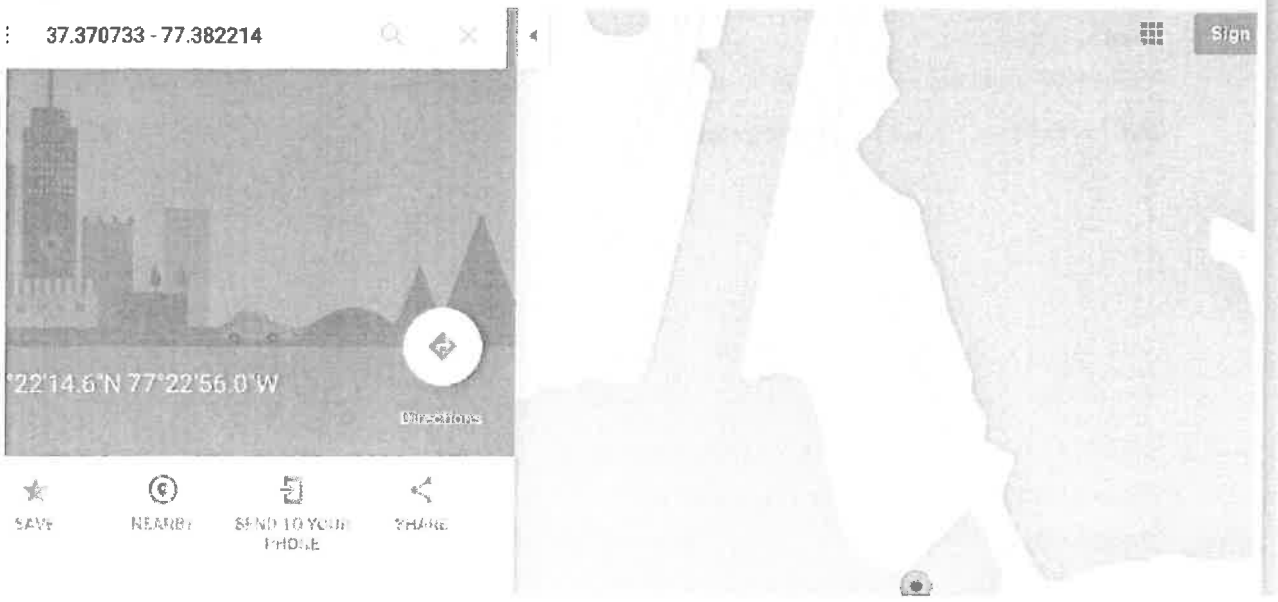
	Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1	Shipping containers received intact and sealed?	✓			Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
2	Samples requiring cold preservation				Preservation Method: Ice bags Blue ice Dry ice None Other (describe)

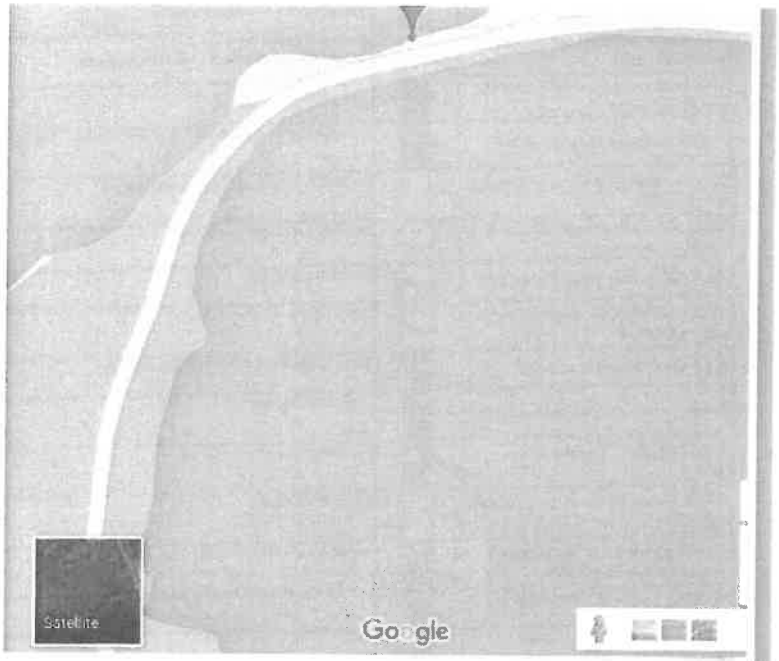
	within (0 ≤ 6 deg. C)**		** If temperatures are recorded in Celsius 16
2a	Daily check performed and passed on IR temperature gun?		Temperature Device Serial # Secondary Temperature Device Serial # (If Applicable)
3	Chain of custody documents included with shipment?		
4	Sample containers intact and sealed?		Circle Applicable: Seals broken Damaged container Leaking container Other (describe)
5	Samples requiring chemical preservation at proper pH?		Sample ID's, containers affected and observed pH
6	Do Low Level Perchlorate samples have headspace as required?		Sample ID's and containers affected
7	VOA vials contain acid preservation?		If unknown, select No)
8	VOA vials free of headspace (defined as < 6mm bubble)?		Sample ID's and containers affected
9	Are Encore containers present?		If yes, immediately deliver to Volatiles laboratory)
10	Samples received within holding time?		ID's and tests affected
11	Sample ID's on COC match ID's on bottles?		Sample ID's and containers affected
12	Date & time on COC match date & time on bottles?		Sample ID's affected
13	Number of containers received match number indicated on COC?		Sample ID's affected
14	Are sample containers identifiable as GEL provided?		
15	COC form is properly signed in relinquished/received sections?		
16	Carrier and tracking number		Circle Applicable: FedEx Air FedEx Ground UPS Field Services Courier Other 6536 8090 5925

Comments (Use Continuation Form if needed)

PM (or PMA) review: Initials HH Date 03/14/16 Page 1 of 1

GL-CH-SR-001 Rev 3





Technical Information

Preparation/Analytical Method Verification
Method SW-846 3050B is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment

Product: Determination of Metals by ICP-MS
Analytical Method: EPA 200.8
Analytical Procedure: GL-MA-E-014 REV# 28
Analytical Batch: 1560238

Preparation Method: EPA 200.2
Preparation Procedure: GL-MA-E-016 REV# 15
Preparation Batch: 1560237

The following samples were analyzed using the above methods and analytical procedure(s).

[redacted] Sample ID#	Client Sample Identification
395425001	JBRU 1A
395425002	JBRU 2A
395425003	PLOH 1
395425004	PLOH 2
395425005	PLOH 3
395425006	JSTO 1 SW
395425007	JSTO 2 SW
395425008	JSTO 3 SW
1203529445	Method Blank (MB)ICP-MS
1203529446	Laboratory Control Sample (LCS)
1203529449	395425001(JBRU 1AL) Serial Dilution (SD)
1203529447	395425001(JBRU 1AD) Sample Duplicate (DUP)
1203529448	395425001(JBRU 1AS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data presented in this report met the acceptance criteria specified in the analytical methods and

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analytes.

Sample	Analyte	Value
1203529448 (JBRU 1AMS)	Antimony	25.5* (75%-125%)
	Arsenic	245* (75%-125%)
	Boron	169* (75%-125%)
	Chromium	140* (75%-125%)
	Lead	173* (75%-125%)

Technical Information

Sample Dilutions

Dilutions are performed to minimize matrix interferences resulting from elevated mineral element concentrations present in solid samples and/or to bring over range target analyte concentrations into the linear calibration range of the instrument. Sample 395425001 (JBRU 1A) was diluted to ensure that the analyte concentration was within the linear calibration range of the instrument.

Analyte	395425 001
Boron	5X

Product: Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer
Analytical Method: SW846 7471A
Analytical Procedure: GL-MA-E-010 REV# 31
Analytical Batch: 1560783

Preparation Method: SW846 7471A Prep
Preparation Procedure: GL-MA-E-010 REV# 31
Preparation Batch: 1560779

The following samples were analyzed using the above methods and analytical procedure(s).

[redacted] Sample ID#	Client Sample Identification
395425009	JBRU 1 B
395425010	JBRU 2 B
395425011	PLOH 2 SED
395425012	PLOH 8 SED
395425013	JTSTO 1 SD
395425014	JTSTO 2 SD
395425015	JSTO 3 SD
395425016	JSTO 4 SED
1203530976	Method Blank (MB)CVAA
1203530977	Laboratory Control Sample (LCS)
1203530980	395298003(NonSEMI) a Serial Dilution (SD)

1203530978	395298003(NonSDGD) Sample Duplicate (DUP)
1203530979	395298003(NonSDGS) Matrix Spike (MS)
1203530983	395298003(NonSDGPS) Post Spike (PS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration, continuing calibration, instrument controls and process controls where applicable, with the following exceptions.

Quality Control (QC) Information

Matrix Spike (MS/MSD) Recovery Statement

The percent recoveries (%R) obtained from the MS/MSD analyses are evaluated when the sample concentration is less than four times (4X) the spike concentration added. The MS/MSD (See Below) did not meet the recommended quality control acceptance criteria for percent recoveries for the following applicable analyte. The post spike recovery was within the required control limits. This verifies the absence of a matrix interference in the post-spike digested sample. The recovery may be attributed to possible sample matrix interference and/or non-homogeneity.

Sample	Analyte	Value
1203530979 (Non SDG 395298003MS)	Mercury	41.8* (80%-120%)

Product: Mercury Analysis Using the Perkin Elmer Automated Mercury Analyzer
Analytical Method: EPA 245.1/245.2
Analytical Procedure: GL-MA-E-010 REV# 31
Analytical Batch: 1560787

Preparation Method: EPA 245.1/245.2 Prep
Preparation Procedure: GL-MA-E-010 REV# 31
Preparation Batch: 1560786

The following samples were analyzed using the above methods and analytical procedure(s).

Sample ID	Client Sample Identification
395425001	JBRU 1A
395425002	JBRU 2A
395425003	PLOH 1
395425004	PLOH 2
395425005	PLOH 3
395425006	JSTO 1 SW
395425007	JSTO 2 SW
395425008	JSTO 3 SW
1203530993	Method Blank (MB)CVAA
1203530994	Laboratory Control Sample (LCS)
1203530997	395253001(NonSDGL) Serial Dilution (SD)
1203530995	395253001(NonSDGD) Sample Duplicate (DUP)
1203530996	395253001(NonSDGS) Matrix Spike (MS)

The samples in this SDG were analyzed on an "as received" basis.

Data Summary:

There are no exceptions, anomalies or deviations from the specified methods. All sample data provided in this report met the acceptance criteria specified in the analytical methods and procedures for initial calibration.

continuing calibration, instrument controls and process controls where applicable.

Certification Statement

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless otherwise noted in the analytical case narrative.

Bryan, Joseph (DEQ)

From: Nate Benforado <nbenforado@selcva.org>
Sent: Thursday, July 21, 2016 5:50 PM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Greg Buppert; Jonathan Gendzier; Brad McLane; Jameson Brunkow
Subject: JRA & SELC Comments re: Draft VPDES Permit for Chesterfield Power Station
Attachments: 2016.07.21 JRA and SELC Comments re Draft VPDES Permit for Chesterfield Power Station.pdf

Dear Mr. Bryan,

Thank you for the opportunity to comment on the draft VPDES Permit for the Chesterfield Power Station. Please accept the attached comments and supporting attachments submitted by the James River Association and Southern Environmental Law Center. Due to the file size of the attachments, the attachments could not be attached to this email but may be downloaded securely through this file sharing link. We will also be mailing you a thumbdrive containing all of the attachments along with a courtesy copy of the letter.

Sincerely,

Nate Benforado
Associate Attorney
Southern Environmental Law Center
201 West Main Street, Suite 14
Charlottesville, Virginia 22902
434.977.4090
434.977.1483 (FAX)
nbenforado@selcva.org
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SOUTHERN ENVIRONMENTAL LAW CENTER

Telephone 434-977-4090

201 WEST MAIN STREET, SUITE 14
CHARLOTTESVILLE, VA 22902-5065

Facsimile 434-977-1483

July 21, 2016

VIA E-MAIL (COURTESY COPY TO FOLLOW BY U.S. MAIL)

Virginia Department of Environmental Quality
Piedmont Regional Office
c/o Joseph Bryan
4949-A Cox Road
Glen Allen, VA 23060
E-mail: ChesterfieldPowerStationWaterPermit@deq.virginia.gov

Re: Final Comments on Draft VPDES Permit No. VA0004146, Dominion Chesterfield Power Station

Dear Mr. Bryan,

The Southern Environmental Law Center ("SELC") writes to submit comments on behalf of itself and the James River Association ("JRA") on the Draft Virginia Pollution Discharge Elimination System ("VPDES") Permit for the Dominion Chesterfield Power Station ("Draft Permit"). We ask that these comments and all attachments be made part of the Administrative Record.[1]

This coal-fired power plant is located on the James River adjacent to the Dutch Gap Conservation Area, which is a popular recreational area that is heavily visited and used for fishing, hiking, boating and camping.[2] The James River in the area of the Chesterfield Power Station is also a sensitive waterway that provides one of the few known spawning areas of the Chesapeake Bay Distinct Population Segment of the Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*), a federally-listed endangered species. The draft permit proposes to authorize the release of impounded wastewater ("dewatering") from two legacy coal ash ponds (the "Upper Ash Pond" and "Lower Ash Pond") with limits set far in excess of applicable water quality standards. Moreover, the dewatering limits in the Draft Permit do not reflect concentrations that available technology can achieve, and, in fact, is being achieved at Dominion's Bremo and

[1] Except to the extent inconsistent with the comments herein, we incorporate by reference the comments submitted by the Chesapeake Bay Foundation (submitted by Margaret L. Sanner) and Sierra Club (submitted by Lane Johnson).

[2] *See* Attachment 3, Chesterfield County, Parks and Recreation, Dutch Gap Conservation Area – Outdoor Programs.

Possum Point sites. The permit also allows an excessive time period of up to six years before toxic waste streams have to comply with EPA's recently promulgated Effluent Limitation Guidelines (ELGs) for Steam Electric Power Plants.[3] Under this rule, DEQ must apply these new guidelines "as soon as possible beginning November 1, 2018."[4]

In addition, the Draft Permit also relies on a 12-year old study in support of a thermal variance under Section 316(a) of the Clean Water Act ("CWA"). This thermal variance requires reevaluation, and the amount of hot wastewater that may be discharged must be lowered, particularly in light of the recently discovered population of spawning Atlantic Sturgeon in the immediate vicinity of the plant.

The authorized intake of cooling water under Section 316(b) of the CWA also poses a threat to the Atlantic Sturgeon and other aquatic life. In fact, two sturgeon larvae were confirmed to have been entrained at the CPS in October 2015. Dominion has some technology in place to reduce impingement/entrainment mortality, but the on/off nature of the intake pumps means that flow cannot be varied other than by taking a unit offline. Other solutions, such as a closed-cycle recirculating system, have gone unconsidered, and could resolve many of the concerns posed by the 316(a) and 316(b) portions of the Draft permit.

As proposed, the concentration limits and thermal variance in the Draft Permit violate the Clean Water Act. The Draft Permit ignores available treatment technology in setting concentration limits, allows Dominion to discharge cooling water at exceedingly high temperatures without any effective limit, and presents a risk to the threatened and endangered species of the James River, including the endangered Atlantic sturgeon. In formulating concentration limits, the Draft Permit relies on dilution, allowing pollutants at concentrations above state standards to be discharged to Farrar Gut and the James River.

The Draft Permit also does not require sufficiently stringent monitoring of permitted discharges; does not adequately protect the existing uses of Farrar Gut and the James River; and fails to account for the impacts of sea level rise and flooding on the Chesterfield Power Station and the coal ash stored there. The Draft Permit also refers to groundwater monitoring due to contamination of groundwater at the site by the Upper and Lower Ash Ponds and the metals waste cleaning pond, but does not require an assessment of corrective action alternatives before closure of the ash ponds may proceed.

I. GENERAL COMMENTS

A. The James River and Surrounding Area

The Chesterfield Power Station ("CPS") is located within the James River Oxbows section of the Captain John Smith Chesapeake National Historic Trail, an area that is frequented by approximately 145,000 children and adults every year. This area includes the Dutch Gap Conservation Area, Henricus Historical Park (a reconstruction of the second oldest English

[3] *See* Attachment 30, 80 Fed. Reg. 67,838 (Nov. 3, 2015).

[4] *Id.* at 67,854.

settlement), and Presquile National Wildlife Refuge. Visitors to this area partake in numerous boating, fishing, historical, and other recreational activities in the lands and waters directly adjacent to CPS.[5]

In particular, the CPS is located directly adjacent to the Dutch Gap Conservation Area, an approximately 800-acre recreational and natural area known for its boating, fishing, hiking, biking, horseback riding, camping, and nature viewing.[6] The northern section of the Dutch Gap Conservation Area is surrounded on the northern side by the James River, on the western side by the CPS's large coal pile and Lower Ash Pond, and on the southern-most side, by the Upper Ash Pond. This triangularly-shaped portion of conservation area also includes the Dutch Gap Boat Landing, a public boat launch, which is located on the James River only several hundred yards downstream of CPS Outfalls 001 and 002.[7]

The southern section of the conservation area is surrounded by Farrar Gut, *i.e.*, the "Old River Channel," and to the north, by both the Upper and Lower Ash Ponds. In fact, the Upper Ash Pond is wedged directly in between the two sections of the Dutch Gap Conservation Area. This section also encompasses the Tidal Lagoon, which is a lagoon that is fed by Farrar Gut and is also directly adjacent to the Upper and Lower Ash Ponds.

The Upper and Lower Ash Ponds are directly adjacent to the surface waters used by visitors to the Dutch Gap Conservation Area, including Farrar Gut and the Tidal Lagoon fed by Farrar Gut. Outfall 005 from the CPS Upper Ash Pond discharges to Farrar Gut directly next to a dock and designated fishing access point, within the Dutch Gap Conservation Area. A large portion of the loop trail at Dutch Gap tracks the perimeters of both the Upper and Lower Ash Ponds, and passes right by Outfall 004 from the Lower Ash Pond into Farrar Gut. The Long Point Trail gives visitors access to a small isthmus out into Farrar Gut, located just several hundred yards from Outfall 003, which discharges hot wastewater (as hot as 129° F)[8] into Farrar Gut. The Oxbow Point Spur Trail provides visitors fishing access approximately a half mile down Farrar Gut from Outfall 003.[9]

Altogether, the Dutch Gap Conservation Area contains 5.8 miles of trails. Visitors are encouraged to fish throughout the conservation area and paddle the 2.5 mile Lagoon Water Trail. The Dutch Gap Conservation Area includes numerous trails, wetlands, docks, viewing points, kayak routes, and fishing access points.[10] Chesterfield County also offers numerous nature

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[5] Attachment 1, National Park Service, U.S. Dep't of the Interior, Making the Trail Visible and Visitor Ready: Progress on the James River Segment (Dec. 2013).

[6] Attachment 2, Nature Programs, Dutch Gap; Attachment 3, Chesterfield County, Parks and Recreation, Dutch Gap Conservation Area – Outdoor Programs; Attachment 4, Chesterfield County, Parks and Recreation, Dutch Gap Conservation Area & Dutch Gap Boat Landing Map.

[7] Attachment 4, Dutch Gap Conservation Area & Dutch Gap Boat Landing Map.

[8] Draft Permit Fact Sheet, Attachment 4.a.

[9] Attachment 4, Dutch Gap Conservation Area & Dutch Gap Boat Landing Map.

[10] *Id.*

programs for visitors to Dutch Gap, including family kayak tours and nature walks for children as young as 5 years of age.[11] At least one outfitter is offering paddle board lessons and excursions at Dutch Gap.[12] Visitors also swim in the surrounding waters, even in Farrar Gut where the water is heated by Outfall 003 and where there is a rope swing.[13] The Dutch Gap Conservation Area also includes the popular Henricus Historical Park, which receives the bulk of the 145,000 annual visitors to the James River Oxbows section of the Chesapeake Historic Trail,[14] and which is also abutted by the Chesterfield upper ash pond. In recent years, the Dutch Gap area of the James River has also been frequented by boat operators providing river tours for viewing sturgeon during the fall spawning period.[15]

In sum, the waters that the CPS discharges to—the James River and Farrar Gut, as well as the Tidal Lagoon fed by Farrar Gut—are used frequently by recreationists and other members of the public for fishing, boating, and nature viewing. These activities occur in extremely close proximity to the CPS Outfalls 001 and 002 on the James River, and Outfalls 003, 004, and 005 in Farrar Gut. Likewise, the land directly adjacent to the CPS within the Dutch Gap Conservation Area and Henricus Historical Park is also used frequently for hiking, biking, nature viewing, and educational purposes. Again, these uses occur directly adjacent to the CPS and directly next to CPS outfalls and the Upper and Lower Ash Ponds.[16]

There is also a drinking water supply located approximately 10 miles downstream from the CPS at Hopewell, Virginia, where the Appomattox River joins the James River. Approximately 21 million gallons of water pass through the intake system every day in order to serve the 9,300 residential, commercial, and industrial customers.[17]

B. Atlantic Sturgeon

On February 6, 2012, following public comment, the National Oceanic and Atmospheric Administration ("NOAA") listed several Distinct Population Segments ("DPS") of the Atlantic

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[11] Attachment 2, Nature Programs, Dutch Gap.

[12] Attachment 5, Black Dog Paddle (offering paddleboard lessons, tours, and rentals at Dutch Gap).

[13] Attachment 6, Mark Fausz, *Health concerns around Dominion flyash permit*, Village News Online (July 13, 2016).

[14] Attachment 1, National Park Service, U.S. Dep't of the Interior, Making the Trail Visible and Visitor Ready: Progress on the James River Segment (Dec. 2013).

[15] Attachment 7. Hunter Reardon, *Out of the Depths*, Richmond Magazine (Feb. 26, 2014).

[16] Attachment 4, Dutch Gap Conservation Area & Dutch Gap Boat Landing Map; Attachment 8, Hopewell Virginia System, Virginia American Water.

[17] Attachment 9, Chesterfield Power Station and Facility Graphic, James River Association; Attachment 8, Hopewell Virginia System, Virginia American Water.

sturgeon as endangered species under the Endangered Species Act.[18] Pursuant to this listing, the Chesapeake Bay DPS of the Atlantic sturgeon became an endangered species. As described by NOAA, there had been "increased sightings and captures of Atlantic sturgeon in the James River, which comprises the only known spawning river for the [Chesapeake Bay] DPS."[19] NOAA acknowledged that there was not enough evidence to confirm an increased abundance of Atlantic sturgeon in the James River, but noted that the increased sightings may be in part due to an improvement in water quality following the passage of the CWA. Despite the possibility of increasing population, NOAA explained that there remained "significant threats" to the Chesapeake Bay DPS of the Atlantic sturgeon from persistent degraded water quality and habitat impacts.[20]

NOAA also explained that while there is evidence that Atlantic sturgeon currently spawn in the James River, spawning locations are limited:

> Past removal of granite outcroppings and dredging of the James River likely represented the most significant impacts to spawning habitat in the CB DPS. Maintenance dredging and current dredging projects underway to deepen and widen the shipping terminal near Richmond on the James River have the potential to take Atlantic sturgeon in the river. The Commonwealth of Virginia does impose a dredging moratorium during the anadromous spawning season.
>
> The placement of turbine structures to generate power in rivers used by Atlantic sturgeon could directly take fish by blade strike or could, potentially, damage or destroy bottom habitat . . .
>
> With respect to the CB DPS, the period of Atlantic sturgeon population decline and low abundance in the Chesapeake Bay corresponds to a period of poor water quality caused by increased nutrient loading and increased frequency of hypoxia. USEPA's Third Coastal Condition Report identified the water quality for the Chesapeake Bay and immediate vicinity (to the Virginia—North Carolina border) as fair to poor. Water quality concerns (especially

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[18] Attachment 10, Threatened and Endangered Status for Distinct Population Segments of Atlantic Sturgeon in the Northeast Region, 77 Fed. Reg. 5880 (Feb. 6, 2012).

[19] *Id.* at 5883.

[20] *Id.*; *see also* Attachment 11, Endangered Species Act Section 7 Consultation: Programmatic Biological Opinion on the U.S. Environmental Protection Agency's Issuance and Implementation of the Final Regulations, Section 316(b) of the Clean Water Act, Appendix C: Additional Species Specific Effects Analysis for Species Under Jurisdiction of NMFS, at 46 (May 19, 2014) (Effects on Sturgeon from Cooling Water intake Structures likely to include "impingement or entrainment, thermal discharges, chemical discharges, and the indirect effect of prey and habitat reduction").

> low dissolved oxygen resulting from nutrient loading) and the availability of clean, hard substrate for attachment of demersal, adhesive eggs appear to be limiting habitat requirements in the CB DPS.
>
> Potential changes in water quality as a result of global climate change (temperature, salinity, dissolved oxygen, contaminants, etc.) in rivers and coastal waters inhabited by Atlantic sturgeon will likely affect those riverine populations. Effects are expected to be more severe for those riverine populations that occur at the southern extreme of the sturgeon's range, and in areas that are already subject to poor water quality as a result of eutrophication.[21]

On June 3, 2016, NOAA proposed designating a large portion of the James River as critical habitat for the Atlantic sturgeon.[22] The proposed critical habitat stretches from Bosher's Dam (a few miles upstream of Richmond), all the way to the Chesapeake Bay, and encompasses the stretch of the James River adjacent to the CPS. The proposal remains open for public comment until September 1, 2016. The critical habitat proposal acknowledged that additional research, subsequent to the 2012 endangered species designation, has shown that:

> Adult Atlantic sturgeon enter the James River in the spring, with at least some eventually moving as far upstream as Richmond (river kilometer 155), which is also the head-of-tide and close to the likely upstream extent of Atlantic sturgeon in the river, given the presence of Bosher's Dam at the fall line (approximately river kilometer 160). Adults disperse through downriver sites and begin to move out of the river in late September to early October, occupy only lower river sites by November, and are undetected on tracking arrays in the lower river by December, suggesting that the sturgeon leave the river for the winter.
>
> The availability of hard-bottom habitat remains relatively limited in the James River and appears to be significantly reduced compared to the amount of available hard-bottom habitat described in historic records. In general, tracked adults occurred further upstream during the late summer and early fall residency (e.g., river kilometer 108 to river kilometer 132) than during the spring and early summer residency (e.g., river kilometer 29 to river

[21] Attachment 10, Threatened and Endangered Status for Distinct Population Segments of Atlantic Sturgeon in the Northeast Region, 77 Fed. Reg. 5880, 5906 (Feb. 6, 2012) (citations omitted).

[22] Attachment 12, Designation of Critical Habitat for the Gulf of Maine, New York Bight, and Chesapeake Bay Distinct Population Segments of Atlantic Sturgeon, 81 Fed. Reg. 35,701 (proposed June 3, 2016).

kilometer 108), suggesting two different spawning areas depending on season.[23]

Atlantic sturgeon generally live their adult lives in marine waters, but spawn in freshwater regions. The Chesapeake DPS spawn in tidal freshwater regions, including the James River. Spawning migrations are cued by temperature. In the Chesapeake DPS, research has confirmed two spawning migrations, one in the spring and one in the fall, with the fall spawning migration generally occurring further upstream than the spring migration.[24] Using telemetry tags placed on Atlantic sturgeon in 2012, 2013, and 2014, researchers tracked the movements of sturgeon on the James River. The Atlantic sturgeon migrated as far upstream as 142 river kilometer and 155 river kilometer.[25] By comparison the CPS is located at approximately river kilometer 132.

In particular, researchers followed one tagged female and analyzed her movements along the James River. The female staged in brackish water, but made two suspected spawning runs in early and late September. The female sturgeon's second spawning run peaked at river kilometer 132, in the immediate vicinity of the CPS.[26]

This research makes clear that Atlantic sturgeon are present in the waters immediately adjacent to the CPS. This finding is further confirmed by numerous publications.[27]

Spawning populations in the Chesapeake DPS "have been drastically reduced due to overfishing, pollution, dam construction and habitat degradation."[28] Atlantic sturgeon eggs are very sensitive to temperature and oxygen content, and in addition, Atlantic sturgeon require hard

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[23] *Id.* at 35,706.

[24] Attachment 13, M. Balazik et al., *Empirical Evidence of Fall Spawning by Atlantic Sturgeon in the James River, Virginia*, Transactions of the American Fisheries Society, 141:6, 1465-1471 (Oct. 1, 2012); Attachment 14, M. Balazik & J. Musick, *Dual Annual Spawning Races in Atlantic Sturgeon*, PLOS One (May 28, 2015).

[25] Attachment 14, M. Balazik & J. Musick, *Dual Annual Spawning Races in Atlantic Sturgeon*, PLOS One (May 28, 2015).

[26] *Id.*, Figure 3 and pp. 6-8.

[27] Attachment 15, R. Springston, *12-foot sturgeons possible in James River, scientist says*, Richmond Times-Dispatch (Sept. 28, 2013) (describing sightings and live fish tracking of Atlantic sturgeon as far upstream as the Mayo Bridge in downtown Richmond); Attachment 16, M. Balazik et al., *The Potential for Vessel Interactions with Adult Atlantic Sturgeon in the James River, Virginia*, N. Am. J. of Fisheries Mgmt. 32:1062-69 (Oct. 15, 2012).

[28] Attachment 17, D. M. Bilkovic et al., *Atlantic Sturgeon Spawning Habitat on the James River, Virginia*, Final Report to NOAA / NOAA Chesapeake Bay Office, Virginia Institute of Marine Science, Center for Coastal Resources Management (Feb. 2009).

substrate.[29] In fact, "[t]he location of reaches of hard bottom benthic habitat" is a "probable limiting factor for successful spawning."[30] As described in one book:

> Substrate is a key habitat parameter for Atlantic sturgeon, because a hard bottom substrate is required for successful egg attachment and incubation. Within rivers, the areas of cobble-gravel, coarse sand, and bedrock outcrops, which occur in the rapids complex, may be considered prime habitat . . . South of the Chesapeake Bay, nearly all rivers have extensive rapid-complex habitats in and/or near the fall line zone; these areas are generally at least 100 km upstream form the saltwater interface. This habitat provides Atlantic sturgeon with well-oxygenated water, clean substrates for egg adhesion, crevices that serve as shelter for post-hatch larvae, and macroinvertebrates for food . . .
>
> Some researchers have attempted to identify likely spawning areas for Atlantic sturgeon using modeling techniques. Brownell et al. (2001 developed a Habitat Suitability Index (HSI) model for spawning Atlantic sturgeon and early egg development, and found that cobble/gravel (64 mm to 250 mm) was the optimal spawning substrate for Atlantic sturgeon . . .
>
> Atlantic sturgeon reportedly spawn in waters where temperatures range from 13° C to 26° C. Temperature appears to be a universal determining factor in spawning migration times. Migration temperatures seem to be fairly uniform across the Atlantic Coast, with southern fish migrating earlier in the spring, and northern fish following a few weeks later once the waters reach the appropriate temperature. Generally, male Atlantic sturgeon commence upstream migration when waters reach around 6° C. Females usually follow a few weeks later when temperatures are closer to 12° C or 13° C. Spawning has been found to occur most often in waters 13° C to 21° C. In addition, Mohler (2003) stated in the "Culture Manual for Atlantic Sturgeon" that the preferred

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[29] Attachment 18, Atlantic Sturgeon (Ch. 8), *Atlantic Coast Diadromous Fish Habitat: A Review of Utilization, Threats, Recommendations for Conservation, and Research Needs*, Atlantic States Marine Fisheries Commission (Jan. 2009).

[30] Attachment 17, D. M. Bilkovic et al., *Atlantic Sturgeon Spawning Habitat on the James River, Virginia*, Final Report to NOAA / NOAA Chesapeake Bay Office, Virginia Institute of Marine Science, Center for Coastal Resources Management (Feb. 2009).

> temperature for induced spawning in cultured sturgeons is between 20° C and 21° C.[31]

The critical importance of hard substrate has been reiterated in NOAA's proposed critical habitat designation of the James River. In the proposed critical habitat designation, NOAA explained that all Atlantic sturgeon "spawn in freshwater over hard bottom substrate."[32] 81 Fed. Reg. 107 at 35,703. "Spawning sites are well-oxygenated areas with flowing water ranging in temperature from 13° C to 26° C, and hard bottom substrate such as cobble, coarse sand, hard clay, and bedrock."[33]

In addition to being critical factors for spawning, temperature and oxygen levels are also important factors for juvenile Atlantic sturgeon:

> Temperature is a key habitat parameter for the structuring of juvenile Atlantic sturgeon summer habitat (Table 8-7). Temperatures in excess of 28°C are judged to have sublethal effects on Atlantic sturgeon. An increase in temperature coupled with low dissolved oxygen and high salinity can cause loss of juvenile Atlantic sturgeon nursery habitat. Their low tolerance to temperature and low oxygen is of particular concern during the first two summers of life when juveniles are restricted to lower saline waters, and are unable to seek out thermal refuge in deeper waters . . .
>
> Dissolved oxygen is a very important habitat parameter for juvenile Atlantic sturgeon. A large proportion of Atlantic sturgeon nursery habitat has been degraded as a result of persistent low levels of dissolved oxygen. Secor and Niklitschek (2001) report that in habitats with less than 60% oxygen saturation (4.3 mg/L to 4.7 mg/L at 22°C to 27°C), YOY fish aged 30 to 200 days, will

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[31] Attachment 18, Atlantic Sturgeon (Ch. 8), *Atlantic Coast Diadromous Fish Habitat: A Review of Utilization, Threats, Recommendations for Conservation, and Research Needs*, Atlantic States Marine Fisheries Commission (Jan. 2009) at 217-19 (citations omitted).

[32] Attachment 12, 81 Fed. Reg. 35,703.

[33] *Id.*; *see also* Attachment 19, Atlantic sturgeon Habitat Addendum, Atlantic States Marine Fisheries Commission (Sept. 2012) ("Within rivers, the areas of cobble-gravel, coarse sand, and bedrock outcrops, which occur in the rapids complex, may be considered prime habitat (Table 1). This habitat provides Atlantic sturgeon with well-oxygenated water, clean substrates for egg adhesion, crevices that serve as shelter for post-hatch larvae, and macroinvertebrates for food."); Attachment 20, M. Balazik, *Life History Analysis of James River Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) with Implications for Management and Recovery of the Species*, Virginia Commonwealth University (2012); Attachment 21, J.A. Musick, Essential Fish Habitat of Atlantic Sturgeon *Acipenser oxyrichus* in the Southern Chesapeake Bay, Final Report to NOAA/NMFS, VIMS Special Scientific Report #145 (Nov. 5, 2005).

> experience a loss in growth. Mortality of juvenile Atlantic sturgeon has been observed for summer temperatures at levels of less than or equal to 3.3 mg/L (Secor and Niklitschek 2001). Recently, the Chesapeake Bay Program adopted dissolved oxygen guidelines based upon levels that would protect Atlantic and shortnose sturgeon, which show unusually high sensitivity to low oxygen concentrations among estuarine living resources.[34]

As stated in the Atlantic States Marine Fisheries Commission fact sheet for Atlantic sturgeon, "[d]issolved oxygen is very important for Atlantic sturgeon because they show unusually high susceptibility to low oxygen."[35] Temperature is also an important habitat parameter for migration patterns and feeding behaviors. *Id.*

Importantly, increased water temperature decreases the amount of dissolved oxygen. The U.S. Geologic Survey has stated that the "concentration of dissolved oxygen in surface water is controlled by temperature . . . Cold water can hold more dissolved oxygen than warm water."[36] Likewise, the EPA has stated multiple times that thermal discharges will raise the temperature of water and lower its oxygen content, thereby harming aquatic life.[37] For example, while issuing final rules to regulate cooling water intakes, EPA explained the relationship between water temperature and dissolved oxygen as follows:

> Numerous studies have shown that thermal discharges may substantially alter the structure of the aquatic community by modifying photosynthetic, metabolic, and growth rates *and reducing levels of DO* . . . Adverse temperature effects are likely to be more pronounced in aquatic ecosystems that are already subject

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[34] Attachment 18, Atlantic Sturgeon (Ch. 8), *Atlantic Coast Diadromous Fish Habitat: A Review of Utilization, Threats, Recommendations for Conservation, and Research Needs*, Atlantic States Marine Fisheries Commission (Jan. 2009) at 231-32 (citations omitted); *see also* Attachment 22, D. H. Secor and T. E. Gunderson, *Effects of hypoxia and temperature on survival, growth, and respiration of juvenile Atlantic sturgeon*, Acipenser oxyrinchus, Fishery Bulletin 96(3) (1998).

[35] Attachment 23, Atlantic sturgeon Habitat Fact Sheet, Atlantic States Marine Fisheries Commission.

[36] Attachment 24, U.S. Geological Survey, *The USGS Water Science School – Water properties: Dissolved oxygen.*

[37] Attachment 25, Office of Water, U.S. EPA, *Volunteer Stream Monitoring: A Methods Manual*, EPA 841-B-976-003 (Nov. 1997) at §§ 5.2, 5.3 ("Temperature affects the oxygen content of the water (oxygen levels become lower as temperature decreases) . . ."); Attachment 26, National Pollutant Discharge Elimination System—Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities, 79 Fed. Reg. 48,300, 48,412 (Aug. 15, 2014) ("Thermal discharges [from cooling systems] also harm aquatic life by reducing levels of dissolved oxygen, altering the location and timing of fish behavior such as spawning, aggregation, and migration, and may cause thermal shock-induced mortality for some species.").

> to other environmental stressors such as high biochemical oxygen demand (BOD) levels, sediment contamination, and pathogens. Reduced waterbody volume due to the effects of climate change and/or lengthy droughts could exacerbate these effects."[38]

Maintaining high levels of dissolved oxygen is critical for the survival of Atlantic sturgeon and rehabilitating the spawning grounds in the James River. In one study examining the effects of hypoxia and temperature on the survival of Atlantic sturgeon, zero specimens survived at a temperature of 26° C and low levels of dissolved oxygen.[39] The study concluded that population declines of the Atlantic sturgeon may have resulted in part due to the increased temperatures in the Chesapeake Bay benthic habitats and hypoxic conditions in summer months (temperatures > 25° C and dissolved oxygen levels <4.0 mg O_2/L).

As reflected by the research consensus, and as set forth in the proposed critical habitat designation, the James River has limited hard substrate locations. High amounts of gravel, cobble, and rock, however, are located in the James River immediately adjacent to the CPS, and continuing downstream through Dutch Gap to where Farrar Gut joins the James River.[40]

This prime spawning habitat has in fact been used for spawning. In October 2015, during the well-documented fall spawning period, two Atlantic sturgeon larvae were entrained at the CPS.[41] The entrainment resulted in the death of the Atlantic sturgeon larvae, an ESA "take" for which Dominion had no permit. The timing (during the fall spawning period) and location of the unpermitted take confirm that the James River immediately adjacent is an active spawning region. Further, the unpermitted take confirms that the CPS is already having a documented negative impact on the endangered Atlantic sturgeon population.

Atlantic sturgeon are benthic feeders that filter quantities of mud, sand, and organic debris along with their food which, while in freshwater, consists of aquatic insects, amphipods, and ologochaete worms.[42] In addition to water temperature, dissolved oxygen and loss of

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[38] Attachment 26, National Pollutant Discharge Elimination System—Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities, 79 Fed. Reg. 48,300, 48,320 (Aug. 15, 2014) (Aug. 15, 2014).

[39] Attachment 22, D. H. Secor and T. E. Gunderson, *Effects of hypoxia and temperature on survival, growth, and respiration of juvenile Atlantic sturgeon*, Acipenser oxyrinchus, Fishery Bulletin 96(3) (1998).

[40] Attachment 17, D. M. Bilkovic et al., *Atlantic Sturgeon Spawning Habitat on the James River, Virginia*, Final Report to NOAA / NOAA Chesapeake Bay Office, Virginia Institute of Marine Science, Center for Coastal Resources Management (Feb. 2009) at 19-20.

[41] Attachment 27, Email from C. Linderman to B. Trulear re: 316(b) Annual Reporting to the Services (May 13, 2016), and Attachment 27A (spreadsheet attached to email).

[42] Attachment 21, J.A. Musick, *Essential Fish Habitat of Atlantic Sturgeon Acipenser oxyrichus in the Southern Chesapeake Bay*, Final Report to NOAA/NMFS, VIMS Special Scientific Report #145 (Nov. 5, 2005) at 14; Attachment 28, Jerre Mohler, *Culture Manual for the Atlantic Sturgeon*, U.S. Fish & Wildlife Service (2003).

spawning substrate, Atlantic sturgeon are also susceptible to a variety of contaminants, in particular polychlorinated biphenyls (PCBs), cadmium, mercury, and lead.[43] In fact, one toxicity test for Atlantic sturgeon indicated that sturgeon are "similar to or somewhat more sensitive to contaminant exposure than rainbow trout."[44] As bottom feeders, whose lives can span many decades, sturgeon are also particularly susceptible to bioaccumulation and bioconcentration of contaminants.[45] PCBs are particularly harmful to aquatic species such as sturgeon, as explained in a recent ESA Section 7 biological opinion:

> PCBs tend to be bound to sediments and also bioaccumulate and biomagnify once they enter the food chain. This tendency to bioaccumulate and biomagnify results in the concentration of PCBs in the tissue concentrations in aquatic-dependent organisms. These tissue levels can be many orders of magnitude higher than those observed in sediments and can approach or even exceed levels that pose concern over risks to the environment and to humans who might consume these organisms. PCBs can have serious deleterious effects on aquatic life and are associated with the production of acute lesions, growth retardation, and reproduction impairment . . . Given that Atlantic sturgeon have similar sensitives to toxins as shortnose sturgeon it is reasonable to anticipate that Atlantic sturgeon have been similarly affected.[46]

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[43] Attachment 23, Atlantic sturgeon Habitat Fact Sheet, Atlantic States Marine Fisheries Commission.

[44] Attachment 46, F.J. Dwyer, et al., *Assessing Contaminant Sensitivity of American Shad, Atlantic Sturgeon and Shortnose Sturgeon*, U.S. Geological Survey, Columbia Environmental Research Center (2000); *see also* Attachment 47, F.J. Dwyer, et al., *Assessing Contaminant Sensitivity of Endangered and Threatened Aquatic Species: Part III. Effluent Toxicity Tests*, Arch. Envt'l Contam. Toxicol. 48, 174-83 (2005).

[45] Attachment 48, S.J. Te, et al., *Bioaccumulation and chronic toxicity of dietary L-selenomethonine in juvenile white sturgeon, Acipenser transmontanus*, Aquatic Toxicology (Nov. 2006) (finding selenium accumulated in liver, kidney, muscle, gill, and plasma tissues of white sturgeon); Attachment 49, S. Heidary, et al., *Bioaccumulation of heavy metals Cu, Zn, and Hg in muscles and liver of the stellate sturgeon in the Caspian Sea and their correlation with growth parameters*, Iranian J. of Fisheries Sciences (Nov. 2011) (finding that as a benthos feeder, heavy load of metals in their body may significantly influence metals concentration in species); Attachment 50, NOAA National Marine Fisheries Service, Endangered Species Act Section 7 Consultation, Biological Opinion (Apr. 10, 2013) at 54 (explaining that sturgeon have "long life span, extended residence in estuarine habitats," and as "a benthic omnivore, [are] predispose[d] . . . to long term repeated exposure to environmental contaminants and bioaccumulation of toxicants").

[46] Attachment 50, NOAA National Marine Fisheries Service, Endangered Species Act Section 7 Consultation, Biological Opinion (Apr. 10, 2013) at 54-55.

II. SPECIFIC COMMENTS

A. VDEQ Has Ignored Available Technology That Can Significantly Reduce Pollutant Concentrations in Wastewater at Chesterfield Plant.

1. The Clean Water Act Requires Technology-Based Effluent Limitations as the Minimum Level of Control Required for Pollution Discharge Permits

It is well-established that VDEQ must comply with the federal Clean Water Act and its implementing regulations in administering the VPDES permitting program. Virginia operates the VPDES program under delegated authority from the Environmental Protection Agency, and compliance with federal law is an express condition of the delegation.[47] Accordingly, state VPDES regulations prohibit permits that do not comply with the Clean Water Act or its regulations.[48]

The Clean Water Act endeavors "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" in part through the development of "technology necessary to eliminate the discharge of pollutants into the navigable waters of the United States."[49] Thus, federal regulations set technology-based effluent limits as the minimum level of control required for a pollution discharge permit.[50] According to 40 C.F.R. § 125.3:

> [t]echnology-based treatment requirements under section 301(b) of the Act represent the *minimum* level of control that *must be imposed* in a permit issued under section 402 of the Act.[51]

This requirement expressly applies to delegated state programs.[52] VDEQ "stand[s] in the shoes of [the EPA] Administrator" and must impose technology-based limits as the minimum level of control in its VPDES permits.[53]

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[47] *See* 40 C.F.R. § 123.1 et seq.

[48] 9VAC25-31-50.C.1. ("[N]o permit may be issued . . . [w]hen the conditions of the permit do not provide for compliance with the applicable requirements of the CWA or the law, or regulations promulgated under the CWA or the law[.]").

[49] 33 U.S.C. § 1251(a).

[50] *See* 40 C.F.R. § 122.44 ("[E]ach NPDES permit shall include conditions meeting the following requirements when applicable. (a)(1) Technology-based effluent limitations and standards based on: effluent limitations and standards promulgated under section 301 of the CWA, or new source performance standards promulgated under section 306 of CWA, on case-by-case effluent limitations determined under section 402(a)(1) of CWA, or a combination of the three, in accordance with § 125.3 of this chapter."); 40 C.F.R. § 125.3.

[51] 40 C.F.R. § 125.3(a) (emphasis added).

[52] *See* 40 C.F.R. § 123.25(a)(15), (36).

VDEQ can impose technology-based treatment requirements in the following ways: "(1) Application of EPA-promulgated effluent limitations developed under section 304 of the Act to dischargers by category or subcategory . . . . (2) On a case-by-case basis under section 402(a)(1) of the Act, to the extent that EPA-promulgated effluent limitations are inapplicable[,]" or through a combination of the methods and specific factors contained in 40 C.F.R. § 125.3(d).[54] Where promulgated effluent limitations are not applicable, under CWA Section 402(a)(1)(B) [33 U.S.C. 1342(a)(1)(B)], VDEQ "must determine on a case-by-case basis what effluent limitations represent the BAT [best available technology economically achievable] level."[55] DEQ's best professional judgment in determining BAT on a case-by-case basis "take[s] the place of uniform national guidelines" promulgated under § 402(a)(1)(A) [33 U.S.C. 1342(a)(1)(A)].[56]

Federal effluent limitations are inapplicable and therefore require technology-based standards developed on a case-by-case basis in the following situations: (1) pollutants not covered by federal effluent limitations and for (2) aspects of operations or activities not covered by federal effluent limitations.

> Where promulgated effluent limitations guidelines only apply to certain aspects of the discharger's operation, or to certain pollutants, other aspects or activities are subject to regulation on a case-by-case basis in order to carry out the provisions of the Act.[57]

Citing to this regulatory language, EPA's NPDES Permit Writer's Manual confirms that federal effluent limitations are inapplicable when they do not include requirements for the "pollutant of concern" or when the facility does not "perform the industrial operation triggering" the limitations.[58]

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[53] *Natural Resources Defense Council, Inc. v. U.S. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988) ("States issuing permits pursuant to § 1342(b) stand in the shoes of the agency, and thus must similarly pay heed to § 1311(b)'s technology-based standards when exercising their BPJ. Thus, notwithstanding Industry's contrary assertions, States are required to compel adherence to the Act's technology-based standards regardless of whether EPA has specified their content pursuant to § 1314(b)."); *N. Cheyenne Tribe v. Mont. Dep't of Envt'l Quality*, 356 Mont. 296, 305 (2010) ("DEQ—as a 'permit writer'—must adhere to the same requirement as the Administrator of implementing pre-discharge treatment standards as the minimum level of control required in all permits.").

[54] 40 C.F.R. 125.3(c)(1)-(3).

[55] *Texas Oil & Gas Assn. v. EPA*, 161 F.3d 923, 928-29 (5th Cir. 1998).

[56] *Id.* at 929.

[57] 40 C.F.R. § 125.3(c)(3).

[58] Attachment 29, U.S. EPA, NPDES Permit Writer's Manual at 5-45, 46 (Sept. 2010).

2. *VDEQ Must Set Technology-Based Limits on a Case-by-Case Basis Where Federal Effluent Limitations are Inapplicable to the Wastewater Streams and Contaminants at the CPS.*

EPA's final "Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category" (the "Power Plant ELGs") do not obviate VDEQ's obligation to impose technology-based standards for arsenic and other metals in the wastewater at the CPS.[59] These effluent limitations do not apply to arsenic and other toxic metals contained in coal ash wastewater from legacy ponds, nor do they apply to activities, like draining and dewatering, which are outside the normal operation of coal ash impoundments.

The Power Plant ELGs establish best available technology limits for only total suspended solids, oil and grease in "legacy wastewater" discharged from inactive coal ash impoundments like the Upper and Lower Ash Ponds.[60] EPA did not create a technology-based standard for any other pollutants because, the agency concluded, power plants handle legacy wastewater in many different ways throughout the country, including combining it and diluting it with other waste streams and precipitation.[61] Thus, "the characteristics of legacy wastewater contained in surface impoundments (flow rate and *pollutant concentrations*) vary at both any given plant, as well as across plants nationwide," and EPA did not have sufficient data to create nationwide effluent limitations.[62] VDEQ is not similarly constrained by inconsistent data at the CPS. Dominion has or can obtain information on the concentration of pollutants in wastewater in the ash ponds.

The Power Plant ELGs also did not contemplate activities other than the normal operations for coal ash impoundments, *i.e.* the passive discharge of treated wastewater when the impoundment's volume reaches the level of an engineered outfall.[63] Here, however, Dominion seeks, in part, authorization to drain water from the Upper and Lower Ash Ponds, which is the highly polluted water in contact with and saturating coal ash. Draining and dewatering a coal ash impoundment in preparation for closure is an aspect of the pond's operation that is not contemplated by the effluent limitations for legacy coal ash ponds promulgated by EPA.

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[59] *See* Attachment 30, Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 80 Fed. Reg. 67,838. These new effluent limitations will not apply to coal ash ponds at Clinch River Plant until after November 1, 2018.

[60] *See* Attachment 30, Power Plant ELGs at 67,854. The rule defines "legacy wastewater" as "FGD wastewater, fly ash transport water, bottom ash transport water, FGMC wastewater, or gasification wastewater generated prior to the date determined by the permitting authority that is as soon as possible beginning November 1, 2018, but no later than December 31, 2023."

[61] *See id.* at 67,855.

[62] *See id.* (emphasis added).

[63] *See* Attachment 30, Power Plant ELGs at 67,855 ("EPA also decided not to establish BAT limitations for legacy wastewater based on a technology other than surface impoundments . . . .").

In these circumstances, federal regulations require that VDEQ apply technology-based treatment standards developed on a case-by-case basis.[64] Thus, to comply with the Clean Water Act, VDEQ must use its best professional judgment to evaluate technology standards for the wastewater discharges from the CPS, based on the best available technology economically achievable.[65] In these circumstances, best professional judgment in determining the best available technology economically achievable "thus take[s] the place of uniform national guidelines, but the technology-based standard remains the same."[66] We further observe that the Clean Water Act provides that "such effluent limitations shall require the elimination of discharges of all pollutants if the Administrator finds . . . that such elimination is technologically and economically achievable."[67]

Prior to the promulgation of the new Power Plant ELGs, EPA Region 4 insisted on technology-based standards on a case-by-case basis for similar discharges of legacy wastewater from coal ash ponds in North Carolina. In a September 16, 2014 letter from Region 4 to the North Carolina Department of Environment and Natural Resources, EPA insisted that the permitting agency apply "additional technology-based effluent limitations on a case-by-case basis on best professional judgment" for draining and dewatering discharges at the L.V. Sutton Steam Station.[68] Specifically, the agency noted that these limitations should address pollutants "that are not included in effluent guidelines for the steam electric power generating industry in 40 CFR Part 423."[69]

North Carolina has either applied technology-based standards, or equally or more stringent water quality-based standards, for draining and dewatering legacy wastewater from coal ash impoundments, even following the release of the new effluent limitations from EPA. These limits are far more stringent than the limits proposed here for the CPS. In 2014, North Carolina developed technology-based standards for a discharge permit renewal for the Riverbend Steam Station recognizing that "[t]he existing federal regulations require development of Technology Based Effluent Limits for the parameters of concern."[70] North Carolina proposed limits

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[64] 40 C.F.R. § 125.3(c)(3).

[65] *See* 33 U.S.C. §§ 1251(a)(1), 1311(b)(1)(A); 40 C.F.R. §§ 122.44, 125.3.

[66] *Texas Oil & Gas Assn. v. EPA*, 161 F.3d 923, 928-29 (5th Cir. 1998); *see also, Natural Resources Defense Council, Inc. v. U.S. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988) (States "are required to compel adherence to the Act's technology-based standards regardless of whether EPA has specified their content . . . ."); *Northern Cheyenne Tribe v. Montana Dept. of Environmental Quality*, 356 Mont. 296, 303 (Mont. 2010).

[67] 33 U.S.C. § 1311(b)(2)(A) (emphasis added).

[68] Attachment 31, Letter from M. Nuhfer, Chief, Municipal & Industrial NPDES Section, EPA Region 4 to J. Poupart, Chief, Permitting Section, Division of Water Quality, North Carolina Department of Environment & Natural Resources (Sep. 16, 2014).

[69] *Id.*

[70] Attachment 32, N.C. Dep't of Envtl. Quality, Fact Sheet for the NPDES Permit Development for Riverbend Steam Station, NPDES No. NC0004961 (May 21, 2014).

significantly more stringent than those contained in the Draft Permit for the CPS for total arsenic (10.5 µg/L as a monthly average and 14.5 µg/L as a daily maximum) and total mercury (47.0 ng/L as a monthly average and 47.0 ng/L as a daily maximum).[71] The final permit for Riverbend continues to require the same technology-based limits based on the agency's best professional judgment for discharges, including dewatering discharges, from the plant's ash pond.[72]

Limits that are technologically achievable in North Carolina are technologically achievable in Virginia, and VDEQ must impose technology-based standards for the pollutants of concern present in the proposed discharges at the CPS in order to fulfill its obligations under the Clean Water Act. The Power Plant ELGs do not set limits for the particular pollutants in this waste stream nor do they account for this particular operational process. The agency must do so through the utilization of its best professional judgment on a case-by-case basis as required by existing federal law and implementing federal and state regulations.[73] As we explain below, economically achievable technology exists to significantly reduce the levels of pollutants in these discharges.

State water quality standards provide a "supplementary basis" to further regulate numerous point sources "to prevent water quality from falling below acceptable levels."[74] But water quality standards are not an adequate substitution in the face of the failure to implement required technology-based effluent limitations. VDEQ's failure to apply technology-based effluent limits here simply does not comply with the law.

3. *An Advanced Wastewater Treatment Plant Can Effectively Treat the Wastewater from the Upper and Lower Ash Ponds.*

Under the Clean Water Act, the technology standard that applies to arsenic and the other toxic metals in coal ash wastewater at the CPS is the "best available technology economically achievable."[75] As a permit requirement, Dominion will be submitting a conceptual engineering report that will set forth a plan to treat wastewaters at the facility.[76] Since this concept engineering report has not yet been submitted, however, there is simply no support in the record that VDEQ has applied technology-based limits in the Draft Permit. In its permit application,

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[71] *See id.*

[72] *See* Attachment 33, N.C. Dep't of Envt'l. Quality, Final Permit for Riverbend Steam Station, NPDES Permit No. NC0004961.

[73] *See, e.g.*, 33 U.S.C. § 1311(b)(2)(A); 40 C.F.R. § 125.3; 9VAC25-31-220.A; *see also Texas Oil & Gas Ass'n v. U.S. E.P.A.*, 161 F.3d 923 (5th Cir. 1998) (When applying BPJ, "[i]ndividual judgments []take the place of uniform national guidelines, but the technology-based standards remain the same.").

[74] *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology*, 511 U.S. 700, 704 (1994), *quoting EPA v. California ex rel. State Water Resources Control Bd.*, 426 U.S. 200, 205, n. 12 (1976) (internal quotations omitted).

[75] *See* 40 C.F.R. § 125.3(a)(2)(iii)-(iv).

[76] Permit Application at pp. 93-94.

Dominion has not provided any details regarding the Centralized Source Water Treatment System (CSWTS), and it remains possible that alternative outfalls could be used for discharge from Outfall 101. As such, the approval of the Draft Permit should remain pending, until the concept engineering report and CSWTS have been submitted and reviewed. Once those plans have been submitted, VDEQ must then establish proper technology-based limits for the dewatering discharges based on the use of this treatment technology.[77]

The fact that technology-based standards are achievable at the CPS is further supported by the fact that Dominion has successfully applied wastewater treatment systems at Bremo and Possum Point plants to treat similar coal ash dewatering wastewaters. Dominion has already installed advanced wastewater treatment systems at those locations, publishing weekly water testing results for both sites that show that the wastewater treatment systems drastically reduce contaminant concentrations. This includes heavy metals and other pollutants such as arsenic, chromium, lead, mercury, and selenium.[78] According to these published results, the Bremo and Possum Point wastewater treatment systems routinely achieve concentrations below the applicable quantification levels for antimony, arsenic, cadmium, chromium III, chromium VI, copper, lead, mercury, nickel, selenium, silver, thallium, zinc, and chlorides.

Thus, Dominion's wastewater treatment systems at Bremo and Possum Point, as well as the technology in place at Riverbend in North Carolina, make clear that technology-based solutions are very effective in removing metals—and are also economically achievable.

Despite this successful technology, the Draft Permit sets limits many times higher, and often orders of magnitude higher, than what has already been achieved at Bremo and Possum Point. These limits are based on achieving water quality standards outside of a toxic mixing zone (*i.e.*, a chronic and acute 2:1 mixing ratio in the receiving stream).[79] As described above, however, technology-based limits must also be developed here on a case by case basis, with limits set based on the more stringent of either the technology based or water quality based limits. Setting of water quality based limits far in excess of what can be achieved using existing technology—including technology that has been demonstrated at Dominion's own plants—does not comply with the CWA, which requires technology-based limits. This applies to both the dewatering period, as well as to normal operations.

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[77] Attachment 34, Report of Randall Grachek, Evaluation of Permit Requirements for Wastewater Discharge from Coal Ash Pond Closure – Dominion Power Company, Chesterfield Power Station (July 21, 2016) at 10. The Southern Environmental Law Center engaged Mr. Randall Grachek, a professional engineer with expertise in wastewater process design, to evaluate the Draft Permit in terms of its wastewater management, treatment, and effluent limits. His report, included in full as Attachment 34, is incorporated fully into these comments by reference.

[78] Attachment 35, Weekly Water Testing Results, Bremo Power Station; Attachment 36, Weekly Water Testing Results, Possum Point Power Station.

[79] Attachment 34, Report of Randall Grachek at p. 10.

VDEQ should also evaluate whether other waste streams can and should be treated by the forthcoming wastewater treatment system.

B. The Draft VPDES Permit Does Not Comply with the Clean Water Act Because it Authorizes Discharges Far in Excess of Water Quality Standards, Instead Relying on Dilution to Meet Water Quality Standards.

To comply with the CWA, VDEQ must incorporate technology-based limits as set forth above. In addition to failing to apply technology-based limits, the draft permit authorizes "dewatering" discharges at concentrations that exceed the applicable Virginia water quality standards, as set forth in Table 1 below.

Table 1: Overview of "Dewatering" Limits in the CPS Permit Compared to Water Quality Standards[80]

Parameter All numbers expressed as total recoverable in µg/L (micrograms per liter) unless otherwise indicated.	**Monthly Average Limit in CPS Draft Permit**	**Maximum Limit in CPS Draft Permit**	**VA Human Health Standard for Public Water Supplies**	**VA Human Health Standard for Other Waters (fish consumption)**	**VA Aquatic Life -** **Chronic**	**VA Aquatic Life –** **Acute**
Antimony	1,300	1,300	5.6	640		
Arsenic	240	440	10		150	340
Cadmium[81]	1.4	2.6	5		0.82	2.45
Chromium III	100	190	100 (total)		53	405
Chromium VI	17	32			11	16
Copper	11	20	1,300		6	9
Lead	17	31	15		8	70
Mercury	1.2	2.2			.77	1.4

[80] Draft Permit, Part A.2.a.

[81] The aquatic life criteria for cadmium, chromium III, copper, lead, nickel, silver, and zinc depend on the water hardness and are calculated herein using the mean hardness for Outfall 101 listed as 66 mg/L in the Reasonable Potential Analysis. Draft Permit Fact Sheet, Attachment 5.f.

Nickel	26	48	610		14	129
Selenium	7.7	14	170		5	20
Silver	2.7	5.0				1.7
Thallium	0.90	0.90	.24	.47		
Zinc	100	190	7,400	26,000	82	83
Chloride (mg/L)	360	660	250		230	860

As shown in Table 1, the draft VPDES Permit sets dewatering limits far in excess of applicable standards for aquatic life and human health. But the wastewater from Outfall 101 will discharge via Outfalls 001 and 002, into the James River, where Atlantic sturgeon spawn.[82] In order to justify the discharge of pollution at concentrations exceeding ambient standards, VDEQ relies on the use of cooling water and the James River to dilute the concentration of the released pollutants. This approach is not sufficiently protective of water quality and will allow the discharge of pollutants above water quality standards, in violation of the Clean Water Act.

In order to justify the discharge of pollution at concentrations exceeding ambient standards, VDEQ relies on a 2:1 mixing ratio and an assumption of complete mixing. These are not proper assumptions. The term "mixing zone" is defined in the Virginia Administrative Code as "a limited area or volume of water where initial dilution of a discharge takes place and where numeric water quality criteria can be exceeded but designated uses in the water body on the whole are maintained and lethality is prevented."[83] Virginia regulations contain default limits on the use of mixing zones.[84] For example, 9 Va. Admin. Code § 25-260-20.B.1. provides that mixing zones: "evaluated or established by the board in fresh water shall not:

a. Prevent movement of or cause lethality to passing and drifting aquatic organisms through the water body in question;

b. Constitute more than one half of the width of the receiving watercourse nor constitute more than one third of the area of any cross section of the receiving watercourse;

c. Extend downstream at any time a distance more than five times the width of the receiving watercourse at the point of discharge.

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[82] Draft Permit Fact Sheet, Attachment 3 at p.7.

[83] 9 Va. Admin. Code § 25-260-5.

[84] 9 Va. Admin. Code. § 25-260-20.

Virginia regulations further provide that "No mixing zone shall be used for, or considered as, a substitute for minimum treatment technology required by the Clean Water Act and other applicable state and federal laws."[85] This requirement is not subject to waiver. But that is exactly what the draft permit does: it allows Dominion to use the James River to dilute its pollution in lieu of applying the best available technology economically achievable required by the Clean Water Act.[86] As discussed above, the facility will utilize a wastewater treatment system that should be able to achieve stringent effluent limitations, just as Dominion has achieved at Bremo and Possum Point. Strict limits should be applied here based on aggressive use of this technology.

Moreover, state regulations also provide that "[t]he board shall not approve a mixing zone that violates the federal Endangered Species Act of 1973, (16 USCA §§ 1531 – 1543) or the Virginia Endangered Species Act, Article 6 (§ 29.1- 563 et seq.) of Chapter 5 of Title 29.1 of the Code of Virginia." As set forth in the VPDES Permit Guidance:

> Due to the fact that protection is not provided for species that are resident within a mixing zone, this guidance should not be applied to a stream or stream segment that contains important resident species that are deemed to require special protection from toxic effects. This is a decision that the permit writer will have to make based on a site inspection, their detailed knowledge of specific situations, public comments and/or comments from other agencies. This exclusion acknowledges that there are some waters having critical beneficial uses or sensitive resident species where a RMZ, with the appropriate spatial restrictions, should be specified as a matter of course.
>
> If the receiving water has a rare and endangered species within reasonable proximity of the proposed mixing zone then this guidance should not be used unless data exists that demonstrate that the parameters for which a mixing zone is being allowed will not result in adverse impacts on that species.[87]

As described above, however, the substrate directly below and in the immediate vicinity of Outfalls 001 and 002 has been assessed as optimal spawning habitat for Atlantic sturgeon consisting of cobble, gravel, and bedrock. In fact, Atlantic sturgeon larvae, just several days old, have already been entrained at the CPS in October 2015, and another adult Atlantic sturgeon was impinged in 2005. Thus, Atlantic sturgeon are known to be present in the precise area where wastewater from Outfall 101 (via Outfalls 001 and 002) will discharge into the James River. In other words, Atlantic sturgeon are likely to come into contact with wastewater that will contain

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[85] 9 Va. Admin. Code § 25-260-20.B.7.

[86] *See* 33 U.S.C. § 1311(b)(2)(A); 40 C.F.R. § 125.3(g).

[87] Attachment 37, Guidance Memo No. 00-2011, Guidance on Preparing VPDES Permit Limits at p. 19.

high levels of contaminants—far in excess of water quality criterion—before dilution and mixing have occurred. Moreover, as described above, as benthic feeders with long life spans, sturgeon are particularly susceptible to bioaccumulation of contaminants, such as PCBs and heavy metals.[88] Thus, the proposed discharges violate both state law and are contrary to the express instructions from VDEQ's own guidance document.

Moreover, VDEQ's own permitting guidance makes clear that the use of mixing zones is generally invalid for tidal waters.[89] Large effluents that are discharged through subsurface diffusers result "in a rising plume(s) that may or not reach the surface . . . **This means that the complete mix assumption is practically never appropriate for tidal waters.**"[90] Thus the use of a mixing zone is contrary to VDEQ guidance, since the James River and Farrar Gut are tidal freshwater, and the CPS relies on subsurface diffusers for large effluent volumes.[91]

Finally, DEQ should take note of the possibility of cumulative and/or synergistic impacts as a function of the combination of metals, salts, and high temperature discharges. At elevated temperatures, the metals contained in the discharges of coal ash water may be even more toxic than at normal stream temperatures.[92] This is particularly true for the endangered Atlantic sturgeon, which, as described above, is likely spawning in the immediate vicinity and is particularly sensitive to temperature, dissolved oxygen, and contaminants such as mercury and lead. Moreover, one recent study estimated the cumulative impact of thermoelectric production on riverine ecosystems in the Northeast, including the James River basin, for the 2000 to 2010

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[88] *See, e.g.*, Attachment 50, NOAA's National Marine Fisheries Service, Endangered Species Act Section 7 Consultation, Biological Opinion (Apr. 10, 2013).

[89] *Id.* at pp. 28-30.

[90] *Id.* at p. 29 (emphasis in original).

[91] Attachment 34, Report of Randall Grachek at p. 11.

[92] *See Mixing Zones: Unreasonable Interference—Discussion Paper* # 1, State of Idaho, Department of Environmental Quality, June 2014, *available at https://www.deq.idaho.gov/media/1117518/58-0102-1401-discussion-paper1-0614.*pdf; Prasada Rao, D. G. V. and M. A. Q. Khan 2000. *Zebra Mussels: Enhancement of copper toxicity by high temperature and its relationship with respiration and metabolism.* Water Environment Research, Vol. 72, No. pp. 175-178; Kamel Naouel, Thierry Burgeot, Mohamed Banni, Mohamed Chalghaf, Simon Devin, Christophe Minier & Hamadi Boussetta. 2014. *Effects of increasing temperatures on biomarker responses and accumulation of hazardous substances in rope mussels* (*Mytilus galloprovincialis*) from Bizerte lagoon. Environ Sci. Pollut. Res. 21:6108–6123 ; BAT, Levent; Mehmet AKBULUT; Mehmet ULHA; Ayße G.NDOÚDU; Hasan H.seyin SATILMIÞ. 2000. *Effect of temperature on the toxicity of zinc, copper and lead to the freshwater amphipod Gammarus pulex pulex* (L., 1758). Turk J Zool 24: 409-415; Khan, M. A. Q.; S. A. Ahmed; Bogdon Catalin; A. Khodadoust; Oluwaleke Ajayi & Mark Vaughn. 2006. *Effect of temperature on heavy metal toxicity to juvenile crayfish, Orconectes immunis* (Hagen). Environ. Toxicol. 21: 513–520.

period.[93] That study found that thermoelectric plants in the James River basin raised the river's water temperature on by 3.9° C annually, and in summer, by 8.2° C.[94] These temperature increases were the highest amongst all eight basins included in the study by wide margin, and despite the fact that the amount of thermoelectricity produced along the James River basin was in the bottom half of all basins.[95] In other words, thermoelectric plants along the James River discharge significantly more heat to the James River basin without providing a comparable amount of electricity to the community.

C. The Draft Permit Fails to Require ELG Compliance "As Soon As Possible."

EPA implemented the Power Plant ELGs in part, because it recognized that the contaminants like arsenic that are being discharged in these waste streams represent a significant cancer risk for humans:

> EPA estimates that reductions in arsenic loadings from the final rule will result in a reduction in potential cancer risks to humans that consume fish exposed to steam electric power plant discharges. In addition, based on the downstream RSEI modeling, EPA estimates that numerous river miles downstream RSEI modeling, EPA estimates that numerous river miles downstream from steam electric discharges contain fish contaminated with inorganic arsenic that present cancer risks to at least one of the evaluated cohorts. The final rule substantially reduces this number of miles.[96]

Against this backdrop, the EPA's final rule required utilities to come into compliance "as soon as possible beginning November 1, 2018," but "no later than December 31, 2023."[97]

Despite this important directive, the Draft Permit requires only that Dominion come into compliance with the final limits derived from the Power Plant ELGs within four or six years.[98] Nowhere does the Draft Permit or supporting record establish that this time frame is "as soon as possible" as required by the Power Plant ELGs. In fact, according to Mr. Randall Grachek, a wastewater engineer retained by SELC and JRA with considerable experience in wastewater treatment, Dominion can install a system to achieve compliance with the Power Plant ELGs by

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[93] Attachment 52, R. Stewart, et al., *Horizontal cooling towers: riverine ecosystem services and the fate of thermoelectric heat in the contemporary Northeast US*, IOP Publishing, Envt'l Res. Letter 8 (2013).

[94] *Id.* at 4 (Table 1).

[95] *Id.*

[96] Attachment 30, 80 Fed. Reg. at 67,874 (Nov. 8, 2015).

[97] Attachment 30, 80 Fed. Reg. at 67,854 (Nov. 8, 2015).

[98] Draft Permit, Part I.B (pp. 20-21).

late 2017 or early 2018 at the latest[99]—far in advance of the March 29, 2022 date provided in the Draft Permit.[100] Given the importance of the Power Plant ELGs, the significant risk to humans and aquatic life, and the express directive from the EPA to implement these measures "as soon as possible," VDEQ must require a shorter time frame for implementation—no later than the July 2018.

Additionally, prior to the time that the final ELGs become effective, DEQ should evaluate options for interim treatment and setting of interim concentration based limits, as a means of achieving compliance "as soon as possible." For example, DEQ should consider use of the treatment system that will apply to dewatering wastewaters to treat FGD purgewater wastewaters discharged from outfall 402, until such time as the FGD WWTP is installed and put into service.

D. The Permit Contains Insufficient Monitoring Requirements

The current draft permit contains insufficient monitoring requirements. As currently proposed, the effluent standards for Outfalls 004 and 005 do not include most coal ash metals. While the use of these outfalls will cease after their closure, in the meantime, these effluent standards are not protective of human health or the environment. Daily monitoring of flow and chemical constituents at appropriate quantification levels must be established in the permit for all parameters at all times for discharges from Outfalls 004 and 005 (not just during dewatering).[101] Monitoring results should be submitted to VDEQ within 1 day of sampling in order to identify problems in a timely manner.

In addition, Outfalls 001 and 002 should also be monitored for coal ash metals. According to the Draft Permit, the dewatering wastewater from the Upper and Lower Ash Ponds will be treated in the CSWTS (defined as Outfall 101), which is then discharged through Outfalls 001 or 002.[102] But Outfalls 001 and 002 have no flow limits and are subject to no coal ash metals requirements before discharge to the James River. To ensure that coal ash contamination does not reach the James River in any significant amount, coal-ash related effluent limitations should be incorporated for Outfalls 001 and 002—especially given the fact that Dominion has not yet proposed the CSWTS and its design remain unknown.[103]

The permit requires insufficiently frequent monitoring of parameters in discharge from the Low Volume Wastewater Treatment System through outfalls 301, 302, 303, and 304. For interim limits where no limit is set and only monitoring is required (including but not limited to Total Recoverable Copper; Chloride; Total Recoverable Nickel; Total Recoverable Zinc),

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[99] Attachment 34, Report of Randall Grachek at p. 11.

[100] Draft Permit, Part I.B.2.

[101] Attachment 34, Report of Randall Grachek at p. 11.

[102] Draft Permit Fact Sheet, Attachment 3 (narrative description of Lower and Upper Ash Pond Decanting/Dewatering Process).

[103] Attachment 34, Report of Randall Grachek at p. 9-10.

monthly monitoring frequency is simply insufficient to provide useful information about the effectiveness of the LVWWTS or effluent characteristics. Monitoring should be required twice weekly. For final limits, where both monthly average and daily maximum limits are set, monthly monitoring is wholly inadequate. A daily maximum limit cannot be effectively enforced with monitoring conducted on a monthly basis. Monitoring frequency should be daily in order to effectively enforce these limits.

As discussed in the Steam Electric ELGs, increases in bromides have been observed at public drinking water intakes where FGD systems have been installed at upstream power plants. Bromide presence in public drinking water source waters may lead to the formation of carcinogenic disinfection by-products ("DBPs"), known as brominated DBPs—including trihalomethanes. At one utility, this led to violation of the trihalomethane Maximum Contaminant Level ("MCL"). DEQ should require monitoring for bromides at all industrial-influenced outfalls at CPS. DEQ should also confer on a regular basis with any downstream public drinking water utilities which may be affected, in particular American Water, and should regularly evaluate the need for limits on bromides at CPS based on the results of monitoring.

The permit requires insufficiently frequent monitoring of parameters in discharge from the Upper Ash Pond and Lower Ash Pond, both Pre-Drawdown through outfall 004 and during dewatering activities through outfall 101. Parameters with numeric monthly and/or daily maximum limits should be monitored daily. Parameters with "no limit" but with monitoring and reporting requirements should be monitored at least twice weekly.

The permit requires insufficiently frequent monitoring of parameters in discharge from the FGD WWTP at outfall 402. Parameters with numeric monthly and/or daily maximum limits should be monitored daily. Parameters with "no limit" but with monitoring and reporting requirements, including those parameters with interim limits setting "no limit," should be monitored at least twice weekly.

For pre-drawdown discharge from the Upper Ash Pond through outfall 005, the permit sets limits only for Flow, pH, Total Suspended Solids, Dissolved Oxygen, and Oil and Grease. The permit should set numeric limits for at least those additional parameters for which limits are set for pre-drawdown discharge from the Lower Ash Pond through outfall 004. In addition, the permit requires insufficiently frequent monitoring of parameters in this discharge. Parameters with numeric monthly and/or daily maximum limits should be monitored daily. Parameters with "no limit" but with monitoring and reporting requirements, including those parameters with interim limits setting "no limit," should be monitored at least twice weekly.

Additionally, the Whole Effluent Toxicity testing requirements in the permit are inadequate to protect the aquatic life present in the James River, including the environmentally sensitive eggs and larvae of the endangered Atlantic Sturgeon, which spawns nearby. WET testing should occur at least once per week during dewatering with results submitted to DEQ within 1 day of testing. In addition, more sensitive species reflecting the sensitivity of the local fauna should be used for the WET testing in lieu of *Ceriodaphnia dubia* (water fleas) and *Pimephales promelas* (fathead minnow).

In addition, the final permit needs to mandate baseline sampling of the James River and Farrar Gut for water quality, sediment quality, ecological health, and fish tissues. The permit must then mandate ongoing sampling of conditions in the James River and Farrar Gut to ensure that the dewatering is not causing harm to aquatic resources or increasing risks to public health. Monitoring of actual conditions in the James River and Farrar Gut during dewatering activities is the only way to ensure that the river is not being harmed, including through processes such as increased bioaccumulation of metals like arsenic and selenium in fish tissues downstream, and through synergistic impacts associated with the combined impact of the high volume of metals and salts, together with the thermal discharges from the plant.

The final permit must also implement a much more rigorous PCB sampling process. The current draft VPDES Permit requires sampling only at a single internal outfall, Outfall 301. Outfall 301, however, is not representative of the entire facility and its various discharges, and will not ensure that PCB discharges are not occurring, as required by the Draft Permit.[104]

Moreover, Method 1668 was designed to "replace[] the current method that is unable to detect low-level PCBs against the Virginia water quality criterion for total PCBs." [105] That old method, which VDEQ has expressly acknowledged cannot detect low-level PCBs, was the only method that Dominion used in testing for PCBs at the CPS. [106] Thus, there is no support in the record for the conclusion that "the data currently indicated that PCBs are not present in the discharge," and that "this permit should neither cause nor contribute to the impairment,"[107] because that data is unable to test properly for PCBs.

Since VDEQ has already acknowledged that the method Dominion used to its outfalls is "unable to detect low-level PCBs," VDEQ should require Dominion to test all non-cooling water outfalls (i.e., Outfalls 101, 301, 302, 303, 304, 004, 401, 401, and 005) for PCBs using method 1668, as well as all stormwater related discharge points. Such testing is particularly critical here, given the fact that the James River is "impaired due to a VDH Fish Consumption Advisory for PCBs," and that Atlantic sturgeon are particularly susceptible to PCB contamination. The results of this testing is necessary under the terms of the Draft Permit, to properly assess the potential for low-level PCB discharge. In addition, the Draft Permit should require more frequent monitoring in accordance with VDEQ's own guidance, including for example, two wet samples at least annually for all stormwater only discharges.[108]

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[104] Draft Permit, Part I.C.9.

[105] Attachment 38, VDEQ, TMDL Guidance Memo No. 09-2001 (Mar. 6, 2009); *see also* Attachment 39, VDEQ, TMDL Guidance Memo No. 09-2001, Amendment No. 1 (Nov. 1, 2011).

[106] Draft Permit Fact Sheet, page 7.

[107] *Id.*

[108] Attachment 38, VDEQ, TMDL Guidance Memo No. 09-2001 (Mar. 6, 2009).

E. Coal Ash Waste is Entering Farrar Gut.

Dominion's Lower Ash Pond is discharging coal ash waste into Farrar Gut. Photographs taken by Jamie Brunkow (Lower James Riverkeeper, James River Association) show unpermitted discharges of coal ash from the Lower Ash Pond into Farrar Gut.[109] These unpermitted discharges are unaddressed by the draft VPDES Permit.

These photographs confirm that cenospheres and other floating or visible waste is discharging into state waters, including through Outfall 004. The floating buoys blocking the outfall are not adequate for collecting or preventing the waste from entering Farrar Gut. Moreover, these buoys block public access and allow Dominion to use state waters for collection of its waste.

F. The Proposed Drawdown Rate of 2 Feet per Day is Out of Line with Drawdown Rates for Other Coal Ash Ponds, and Could Result in Instability.

At all other coal ash sites, DEQ and DCR have imposed a six inch per day drawdown rate to reduce the risk of dam instability and the possibility of failure during dewatering. DEQ should not tolerate any increased risk of a catastrophic failure during drawdown. As such, DEQ should limit drawdown of the Upper and Lower Ash Ponds to 6 inches per day.

G. The Proposed Thermal Variance Violates the Clean Water Act.

Under the CWA, heated industrial wastewater, also called "thermal effluent," is a pollutant that cannot be discharged to a river without an NPDES permit.[110] The U.S. EPA has acknowledged that "thermal pollution has long been recognized to cause harm to the structure and function of aquatic ecosystems."[111] As such, every NPDES permit must impose "any more stringent limitation" necessary to meet "water quality standards," including state standards for temperature.[112]

In other words, permits ordinarily must impose effluent limits on heated wastewater sufficient to satisfy state water quality standards for temperature. Section 316(a) provides only narrow authority for a state to allow a variance from water quality standards for temperature, however, when such effluent limits are "more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife."[113] A "balanced, indigenous population" is defined by EPA to mean, essentially a healthy and

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[109] Attachment 40, Photographs taken by Jamie Brunkow, James River Association (Oct. 24, 2014 – Apr. 5, 2016).

[110] 33 U.S.C. § 1342; *see also* 40 C.F.R. § 122.2 (defining pollutant as including "heat").

[111] U.S. EPA, National Pollution Discharge Elimination System—Suspension of Regulations Establishing requirements for Cooling Water Intake Structures at Phase II Existing Facilities, 72 Fed. Reg. 37,107 (codified at 40 C.F.R. §§ 122, 125 (July 9, 2007).

[112] 33 U.S.C. § 1311(b)(1)(C).

[113] 33 U.S.C. § 1326(a).

sustainable native ecosystem: "a biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species and by a lack of domination by pollution tolerant species."[114]

Moreover, the impacts of past discharges on the aquatic community cannot be ignored in a § 316(a) demonstration. In particular, shifts in species composition and other adverse impacts attributable to past discharges cannot be disregarded. The balanced, indigenous population of fish, shellfish, and wildlife contemplated by the CWA is the population that exists absent the impacts of the applicant's thermal discharge.[115]

As explained by the EPA Environmental Appeals Board ("EAB"):

> [Section] 316(a) speaks only of "a balanced, indigenous population." . . . [A]ccording to [applicant], the indefinite article "a" cannot be "tortured" into the definite phrase "the balance which would exist in the absence of heat." However, these arguments . . . would render the general goal of the Act -- to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" -- a dead letter. Section 316(a) must . . . be read in a manner which is consistent with the Act's general purposes. Consequently, § 316(a) cannot be read to mean that a balanced indigenous population is maintained where the species composition, for example, shifts . . . from thermally sensitive to thermally tolerant species. Such shifts are at war with the notion of "restoring" and "maintaining" the biological integrity of the Nation's waters.[116]

The EAB affirmed this position again in 2006, explaining that a § 316(a) demonstration may not "ignore the fact that the abundance of a certain species . . . has been altered over the past several decades," because such an interpretation would be "inconsistent with the regulations, the legislative history of section 316(a), the purpose of the CWA, and prior case law."[117]

The thermal variance included in the draft VPDES Permit does not satisfy the requirements of the CWA, and is not supported by the record.

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[114] 33 U.S.C. § 1326(a); *see also* 40 C.F.R. §§ 125.58(f), 125.71(c).

[115] *See* 40 C.F.R. § 125.71(c) (balanced indigenous community excludes "species whose presence or abundance is attributable to the introduction of pollutants that will be eliminated by compliance" with water quality standards); 40 C.F.R. § 125.73(a) (demonstration must consider the "cumulative impact of its thermal discharge together with all other significant impacts on the species affected"; *In re Dominion Energy Brayton Point*, 12 E.A.D. 490, 557 (2006) ("[T]he population under consideration is not necessarily just the population currently inhabiting the water body but a population that may have been present but for the appreciable harm.").

[116] *Pub. Serv. Co. of Ind.*, 1 E.A.D. 590, 28 (1979).

[117] *In re Dominion Energy Brayton Point*, 12 E.A.D. at 558.

First, VDEQ cannot rely on a study from 2003, which in turn relied on data from 1998, to reissue the CPS thermal variance. At the time of the 2003 study, it was not known that the James River contained one of the few spawning populations of Chesapeake Bay DPS Atlantic sturgeon, an endangered species. As described above, temperature is a key factor for Atlantic sturgeon migration, spawning, and juvenile survival. High water temperatures also significantly reduce dissolved oxygen levels, which is also a key environmental factor for Atlantic Sturgeon spawn and juvenile survival rates. A new study is required for this reason alone.

Second, the 2003 study was based on parameters and assumptions that no longer apply. The statement in the draft VPDES Permit that "station operations have not materially changed since the approval of the 316(a) variance in 2004," and that "there is no evidence that the stream characteristics have materially changed in that time,"[118] is contradicted by the record.

Most apparently, in the 2003 study, the effluent temperature data from 1998 for Outfall 003 never exceed approximately 45° C.[119] In the Reasonable Potential Analysis for Outfall 003, however, attached to the draft VPDES Permit, the 90% percentile temperature for that same effluent stream is 51.7° C. In other words, the more recent data shows that this same effluent stream appears to be at least 7° C *hotter* than it was in 1998.[120] In addition, it appears more water is being discharged from Outfall 003 in recent years as compared to 1998. The Reasonable Potential Analysis for Outfall 003 lists the discharge flow as 742 million gallons per day, which equates to 32.5 m^3 per second.[121] The 1998 data shows that the flow through Outfall 003 never even exceeded 30 m^3 per second.[122] In sum, it appears the heated wastewater out of Outfall 003 is being discharged at a rate approximately 10% higher than it was in 1998, and at a temperature at least 7° C hotter.

Similarly, the 2003 study showed effluent temperatures through Outfalls 001 and 002 as never exceeding approximately 40° C.[123] But in the Reasonable Potential Analysis for Outfalls 001 and 002, however, attached to the draft VPDES Permit, the 90% percentile for that same effluent stream is 45° C, or roughly 5° C *hotter* that they were in 1998.[124] The Reasonable Potential Analysis for Outfalls 001 and 002 also erroneously reports the "discharge flow" as 1

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[118] Draft Permit Fact Sheet, Attachment 7.

[119] See Attachment 41, Hydroqual Study, Discharge Temperatures Through Units 4, 5, and 6 (2003).

[120] Draft Permit Fact Sheet, Attachment 5.b, "Reasonable Potential Analysis for Outfall 003."

[121] Draft Permit Fact Sheet, Attachment 5.b, "Reasonable Potential Analysis for Outfall 003."

[122] *See* Attachment 41, Hydroqual Study, Flow through condensers for Units 4, 5, and 6 (2003)

[123] *See* Attachment 41, Hydroqual Study, Discharge Temperatures Through Units 3, 7 and 8 (2003).

[124] Draft Permit Fact Sheet, Attachment 5.a, Reasonable Potential Analysis for Outfalls 001 and 002.

million gallon per day.[125] In fact, Outfalls 001 and 002 discharge much higher amounts, having a 30 day max reported as 212 and 89 million gallons per day, respectively.[126]

Third, the old 2003 study relied heavily on the temperature of the water in Farrar Gut measured at FG4, which is located where Farrar Gut joins the main channel of the James River. The distance from Outfall 003, which discharges into the head of Farrar Gut, to FG4, is *nearly four miles*. The old study relied on a *four mile* mixing zone—which was included in the permit that was in place at the time of the study[127]—when it concluded that the average temperature rise at FG4 due to the discharge of heated cooling water from Outfall 003 was 1.6° C. As the 2003 study explained:

> Station FG4 is a key location at which the thermal loading from Outfall 003 is ultimately discharged to the James River. These temperatures are not high enough to produce significant changes to the hydrodynamic characteristics of the James River system.

This study completely ignores, for example, the effect the heated cooling water has on FG1, which measures the temperature near Outfall 003. But the water at FG1 is a navigable water subject to the CWA just like the water at FG4. The 2003 study and the draft VPDES Permit fail to establish that the thermal variance adequately protects aquatic organisms along the entirety of Farrar Gut, not merely at the point four miles away, where it joins the James River.

Relying on such a large mixing zone would violate express Virginia regulations. For example, 9 Va. Admin. Code § 25-260-20.B.1 provides that mixing zones: "evaluated or established by the board in fresh water shall not":

a. Prevent movement of or cause lethality to passing and drifting aquatic organisms through the water body in question;

b. Constitute more than one half of the width of the receiving watercourse nor constitute more than one third of the area of any cross section of the receiving watercourse;

c. Extend downstream at any time a distance more than five times the width of the receiving watercourse at the point of discharge.

The use of Farrar Gut in this way violates all three subsections of Virginia's mixing zone regulations. Discharging large volumes of water at temperatures as high as 130° F is harmful to aquatic organisms in the mixing zone, in violation of subsection a.[128] Dominion also discharges

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[125] Draft Permit Fact Sheet, Attachment 5.a, Reasonable Potential Analysis for Outfalls 001 and 002.

[126] Draft Permit Fact Sheet, Attachment 4.a, DMR Data, August 2012-July 2015.

[127] Draft Permit Fact Sheet, Attachment 7.

[128] As an example, in one study, all Atlantic sturgeon test specimens died at a temperature of 26° C (79° F) in low oxygen conditions. Attachment 22, D. H. Secor and T. E. Gunderson, *Effects of*

so much cooling water that it violates subsection b. And given that Farrar Gut is approximately 500 feet across at the point of discharge, VDEQ cannot rely on a 4 mile mixing zone, as it violates the restriction in subsection c. In addition, Virginia regulations provide that "[n]o mixing zone shall be used for, or considered as, a substitute for minimum treatment technology required by the Clean Water Act and other applicable state and federal law."[129]

Virginia regulations also provide that "[t]he board shall not approve a mixing zone that violates the federal Endangered Species Act of 1973, (16 USCA §§ 1531 – 1543) or the Virginia Endangered Species Act, Article 6 (§ 29.1- 563 et seq.) of Chapter 5 of Title 29.1 of the Code of Virginia." Given the recently discovered presence of an endangered species in the waters that Dominion discharges to, the 2003 study must be reevaluated.

Since the 2003 study reached its conclusions by relying on a four mile mixing zone that cannot apply here, a new study is required to evaluate the thermal effects without relying on a mixing zone that violates state law.

Fourth, the draft VPDES Permit assumes that the receiving stream for Outfall 003 and 004, *i.e.*, Farrar Gut, has the same temperature as the effluent, because Outfall 003 "discharges a large volume of water at the head of Farrar Gut, it creates free flowing stream characteristics in a tidal water body." VDEQ further explains that "because the Outfall 003 discharge creates the free flowing stream condition, it is evaluated as if discharging to a dry ditch with zero flow."[130] This assumption leads to the absurd result that the temperature of the effluent, 51.7° C (90th-percentile), is equal to the temperature of Farrar Gut, the receiving stream.

This is not a reasonable assumption and violates the law. Farrar Gut is a navigable water and not a dry ditch. If Outfall 003 were to stop discharging the large amounts of heated wastewater it currently discharges, tidal freshwater from the James River would undoubtedly continue to flow into and out of Farrar Gut as it currently does, including around Outfall 003. Moreover, the water in Farrar Gut would undoubtedly be much cooler than 51.7° C—which is not a naturally achievable temperature in that environment. By comparison, the background temperature used for Outfalls 001 and 002 in the James River is 29.3° C,[131] *more than 22° C cooler* than the "assumed" temperature at Outfall 003.

Relying on this "assumption" would also completely circumvent Congress' decision to regulate heat as a pollutant under the CWA. The draft VPDES Permit contains no limits for effluent temperatures, and only provides an aggregate "heat rejection" limit. Thus, under this "assumption," Dominion could discharge as much heated cooling water as it wants, in as high a volume as it wants, because it would never be adding heat to the receiving stream. The CWA,

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hypoxia and temperature on survival, growth, and respiration of juvenile Atlantic sturgeon, Acipenser oxyrinchus, Fishery Bulletin 96(3) (1998).

[129] 9 VAC § 25-260-20.B.7.

[130] Draft Permit Fact Sheet, Attachment 5.b.

[131] Draft Permit Fact Sheet, Attachment 5.a

however, does not provide a pass to polluters who pollute so much so, that the receiving stream takes on characteristics of the effluent.

In sum, there is insufficient evidence in the record to support the reissuance of the variance. Conditions have substantially changed since that study; the 2003 study relied on improper assumptions, in effect, allowing for a four mile mixing zone; and Reasonable Potential Analysis in the current draft VPDES Permit relies on improper assumptions relating to the temperature of the receiving stream.

A new study must be performed to ensure that the CPS heat discharge is not negatively affecting the balanced, indigenous population of shellfish, fish, and wildlife, particularly in light of the known presence of spawning Atlantic sturgeon. Moreover, this new study must evaluate technology-based effluent limitations, including the installation of a closed-cycle cooling system. Such a consideration is required given the presence of spawning Atlantic sturgeon in the immediate area, which is highly sensitive to temperatures above 26° C and low dissolved oxygen levels (a condition that is amplified by high water temperatures). Moreover, discharging heated wastewater (at temperatures exceeding 51.7° C) into a public waterway that is frequented by numerous visitors to the Dutch Gap Conservation Area is a public health hazard. Farrar Gut is a navigable water used by boaters and fishers alike.

In addition, VDEQ must establish temperature limits rather than aggregate heat rejection limits—which are difficult to assess and difficult to enforce. In fact, nowhere in the draft VPDES Permit does the record establish that Dominion is in fact complying with the current heat rejection limits. Moreover, as with contaminants, the CWA requires the use of the best-technology available for thermal discharges.[132] Nowhere does the record establish, however, that any best-technology available analysis has been performed by VDEQ at the CPS. These assessments must be performed—both a new study assessing the thermal impacts, and an analysis of the best cooling system technology available—as they are particularly critical at the CPS, since endangered Atlantic sturgeon spawn in the waters directly adjacent to the CPS, and humans visit the exact waters where hot wastewater is being discharged. Even small amounts of water at current temperatures being discharged from Outfalls 001, 002, and 003 could be lethal to Atlantic sturgeon larvae, juveniles, and even spawning adults, and could injure humans visiting the Dutch Gap Conservation Area. In addition, according to one study, thermoelectric plants in the James River basin raise the temperature of the James River by 3.9° C annually and 8.2° C in the summer.[133] In order to comply with the CWA and the ESA, at a minimum, VDEQ must (a) impose best-technology available wastewater temperature limits; (b) require a new study in support of the thermal variance; and (c) and impose actual temperature limits, rather than BTU per hour limits that were established more than a decade go based on the plant's power generating capacity, rather than the harm to the environment.

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[132] 33 U.S.C. § 1326(b) requiring that "the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact").

[133] R. Stewart, et al., *Horizontal cooling towers: riverine ecosystem services and the fate of thermoelectric heat in the contemporary Northeast US*, IOP Publishing, Envt'l Res. Letter 8 (2013).

H. Additional Clean Water Act Section 316(b) Requirements are Appropriate Here.

The CPS operates five cooling water intake structures ("CWIS") in the James River that have a combined design intake flow of 1,058 million, or 1.058 billion, gallons per day.[134] More than 98 percent of the water withdrawn is used as cooling water.[135] Notably, the pumps that operate the CWIS at CPS "do not have variable speed capabilities, meaning that they are either in operation or are out of operation."[136] At times, due to maintenance needs or energy demand, one or more pumps may be out of operation; typically, in the summer months and winter peaking season, "all pumps are typically in operation."[137] This means that the plant is often operating at the designed intake flow capacity of 1.058 billion gallons per day.

The Draft Permit requires Dominion to implement "interim Best Technology Available (BTA) measures to minimize impingement and entrainment (I&E) mortality and adverse impacts."[138] Impingement and entrainment both can result in injury or mortality to aquatic life. Impingement occurs when an organism larger than the openings in the CWIS screen becomes impacted, or impinged, on that screen (the screens consist of a 3/8 inch or about 0.95 centimeter mesh); entrainment occurs when organisms that are smaller than the screen mesh, especially eggs and larvae, are taken up with the cooling water at the intake.

Dominion's consultant's Draft Impingement Characterization Study Plan (April 10, 2015) and Draft Entrainment Characterization Study Plan (April 10, 2015) were both authored before the October 2015 entrainment of two larval Atlantic Sturgeon at CPS, and so their assessment of the potential for entrainment of early life stages as "unlikely and unexpected" must be reassessed. Both Draft Study Plans must be updated to account for the confirmed take of Atlantic Sturgeon at CPS. Significant priority should be placed on developing and implementing entrainment controls in advance of the next permit reissuance.[139] Such controls should be assessed as studies are completed and information becomes available, instead of waiting for the next permit cycle, five years from now. Of note, entrainment controls typically address impingement also, while the impingement controls in place at the CWIS may not address entrainment.

Studies of swimming capacity of larval Green sturgeon and White sturgeon cited in Dominion's outside consultant's April 10, 2015 Draft Impingement Characterization Study Plan

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[134] Draft Permit Fact Sheet, Attachment 7.

[135] *Id.*

[136] *Id.*

[137] *Id.*

[138] Draft Permit, Part I.D.1.

[139] Given that an unpermitted take has already occurred at the CPS, priority should be placed on Dominion's incidental take permitting process, as the outcome of that permitting process could impact the 316(b) process. VDEQ should require assurance from Dominion that whatever ESA take permitting process Dominion is pursuing is moving forward expeditiously.

showed that tests at flows of 0.67 and 1.2 feet per second ("fps") resulted in 0.68 impingements per fish for Green Sturgeon and 0.02 impingements per fish for White Sturgeon.[140] Approach velocities at the CPS intakes range from 0.6 to 1.0 fps, with through-screen velocities of 1.2 or 1.7 fps, depending on the CWIS unit. Dominion's consultant's discussion of sturgeon swimming capacity cites no studies of Atlantic sturgeon swimming capacity, and notes differences in swimming capacity between Green Sturgeon and White Sturgeon.[141] The document also refers to the ability of juvenile and adult Shortnose Sturgeon, with body lengths greater than 58.1 centimeters, to avoid impingement at intakes with velocities as high as 3.0 fps.[142] However, many of the larvae present in the vicinity of the CWIS at CPS are unlikely to be of this size, as they will have recently hatched from spawning areas in the CPS vicinity, or are migrating downstream from other spawning areas upstream. Atlantic Sturgeon larvae are "active swimmers," leaving the bottom at 8 to 10 days of age "to swim in the water column."[143] Larvae begin moving downstream to rearing grounds at about 8 to 12 days of age, upon completion of the yolk-sac larval stage.[144] Larvae enter the juvenile phase at about 30 millimeters in length, meaning that the larvae swimming past the CPS and being impinged or entrained by the CWIS are not nearly as large as the Shortnose Sturgeon referred to.

The Draft Permit specifies that each cooling water intake structure ("CWIS") at CPS must "utilize a curtain wall, traveling screens, spray wash systems and debris return." The intake screens rotate and impinged debris (including aquatic life) are washed off into a trough, which returns organisms to the James River.[145] However, information submitted by Dominion to DEQ in response to a March 4, 2015 DEQ letter and incorporated in the Fact Sheet indicates that the CWIS are inspected "at least once per shift to identify if operation of the backwash and/or travelling capability of the screens is warranted[.]"[146] DEQ should consider requiring more frequent inspection of the CWIS to assess the need for backwash and/or travelling screen operation, especially during months when Atlantic sturgeon are spawning and their larvae are migrating downstream, or during other known anadromous fish migrations in the James River.

Given the presence of Atlantic sturgeon spawning habitat near the CWIS and the October 2015 entrainment and death of two larval Atlantic sturgeon, DEQ should require further measures to reduce flow and associated entrainment. According to Dominion, "[o]perational changes and additional technology requirements are premature until the feasibility, cost and benefits are evaluated in accordance with the 316(b) Rule."[147] We incorporate here by reference

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[140] Draft Permit Fact Sheet, Attachment 7.

[141] *Id.*

[142] *Id.*

[143] *Id.*

[144] *Id.*

[145] Draft Permit Fact Sheet, Attachment 7.

[146] *Id.*

[147] *Id.*

the comments of the U.S. Fish and Wildlife Service, submitted on May 7, 2015 and incorporated into the Fact Sheet, urging that the direct and indirect benefits to threatened and endangered species of decreased impingement and entrainment mortality be thoroughly accounted for in any cost and benefit studies. These include the Comprehensive Cost and Technology Study, the Benefits Valuation Study, and the Non-water Quality and Other Impacts Study.

Even without further study being completed, and based on the already-documented entrainment of Atlantic sturgeon larvae, it is clear that the existing technology the CPS is inadequate and must be enhanced. In comments submitted to DEQ regarding the CWIS at Appalachian Power Company's Clinch River Plant, the U.S. Fish and Wildlife Service stated that, in order to protect federally listed species in Virginia, a 1.0-millimeter intake screen mesh size and actual through-screen velocity of no more than 0.25 fps are recommended.[148] Currently, intake screen mesh size at CPS is currently 3/8- inch, or 9.5 millimeters, and through-screen velocity at the five CPS CWIS are either 1.2 or 1.7 fps. At a minimum, the CPS intake should follow the Fish and Wildlife Service's recommendations for protecting federally listed species in Virginia.

The Draft Permit specifies that Dominion shall submit to DEQ, no later than 270 days prior to the expiration date of the permit, "all applicable information described in 40 CFR § 122.21(r)."[149] Instead of waiting until the next permit reissuance to collect the information required by the Rule, DEQ should require Dominion to submit studies as they are completed, so that this information may be assessed by the public in advance of the next permit cycle. In addition, DEQ should in *this* permit reissuance require Dominion to combine the impingement reduction technologies in place with flow reduction (in terms of volume and through-screen velocity) to further reduce impingement and entrainment. Reduction of through-screen velocity and/or intake volume, or operation of a closed-cycle recirculating system, would all significantly reduce impingement/entrainment and associated mortality.

I. The Draft Permit Fails to Comply with Virginia's Tier 1 Antidegradation Policy.

The Draft Permit does not comply with Virginia's Antidegradation Policy, which—with respect to "Tier 1 waters"—provides as follows:

> As a minimum, existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.[150]

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[148] Letter from U.S. Fish and Wildlife Service, Virginia Field Office, to Mark Trent, Virginia Department of Environmental Quality, Southwest Regional Office, Re: Appalachian Power Company Clinch River Plant (VPDES VA0001015) 316(b) Coordination, Russell County, VA, Project # 2015-I-2237, at p. 3 (July 16, 2015).

[149] Draft Permit, Part I.D.3.

[150] 9VAC25-260-30.A.1.

The draft fact sheet summarizes the antidegradation analysis on Pages 8-9. DEQ determined that the James River and Farrar Gut are Tier 1 waters, such that the level of water quality to protect the existing uses shall be maintained and protected. Nevertheless, the draft permit substantially and negatively impacts existing uses.

The extremely hot wastewater represents a hazard to humans who may come in contact with the water. Outfall 003, for example, has discharged water as hot as 129° F, while Outfalls 001 and 002 have discharged at temperatures as high as 120° F and 128° F, respectively. Visitors to Dutch Gap use both of the areas surrounding these outfalls for recreational purposes, including boating, fishing, and nature viewing, and even swimming. These temperatures are hot enough to cause scald burns in humans, especially in children whose skin is more susceptible to burning.[151]

J. VDEQ Should Require Groundwater Monitoring Under the VPDES Permit.

A groundwater monitoring plan, approved October 5, 2001, is an enforceable part of the permit. The 2004 permit required the utility to submit a corrective action plan (CAP), to address groundwater contamination associated with the "Old Ash Pond."

The CAP identified several "Constituents of Possible Concern" in the Old Ash pond, including arsenic, cadmium, iron, manganese, and molybdenum. Designation as a Constituent of Possible Concern means that concentrations for these parameters were found higher than EPA Regional Screening levels for tap water (T-RSLs) or National Primary Drinking Water Regulations Maximum Contaminant Levels (MCLs). In addition, several pollutants were found have increased significantly above background concentrations in the Old Ash pond, including arsenic, barium, copper, iron, manganese, molybdenum, ammonia, and chloride. Arsenic was found at 1000 times the EPA-listed T-RSL in 2013. Furthermore, manganese has been recorded at 270 times the groundwater standard, and iron at 318.3 times the standard.

There is also groundwater contamination associated with the "New Ash Pond." Quarterly groundwater testing from 2004 to 2015 for the New Ash pond showed that cadmium has been leaching since 2004. Cadmium has been detected in three different wells and has exceeded state groundwater standards. Furthermore, sulfate has been reported at 11 times the groundwater standard and ammonia has also been reported above background levels for the past ten years.

Surface water testing in Aiken Swamp and Farrar Gut for the CAP submitted in 2007 and 2012 showed arsenic, barium, chromium, copper, iron, manganese, molybdenum, vanadium, zinc, ammonia, chloride, and sulfate above the relevant background concentrations. Testing further showed iron and manganese in Farrar Gut above the relevant Virginia Water Quality Standards for public water supply, and hexavalent chromium in the surface water in Farrar Gut above the Virginia Water Quality Standards for Aquatic Life. Certain constituents, such as arsenic, are bioaccumulative, and may pose a risk over time to aquatic life even if not detected at

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[151] Attachment 42, Shields et al., *Still too hot: Examination of water temperature and water heater characteristics 24 years after manufacturers adopt voluntary temperature setting*, 34 J. Burn Care Res. 281-87 (Mar. 2014).

levels above standards.[152] Given the recreational and aquatic life uses of Farrar Gut, including fish consumption, these results raise concerns.

Groundwater at the site flows radially away from the Old Ash Pond, which is bordered by Farrar Gut and Aiken Swamp. Groundwater at the site may be causing impacts to surface waters, as indicated by the Groundwater Quality and Risk Assessment Report – Phase I. Given that the current closure plans allow the ash storage facilities to remain unlined, it is possible that pollution of groundwater and subsequent pollution of the surface water by that groundwater will continue post-closure. DEQ should require a comprehensive assessment of corrective action alternatives and their efficacy *before* allowing closure of the Upper Ash Pond and Lower Ash Pond to proceed. This will likely require additional groundwater monitoring data. No permits authorizing closure should be granted until these issues regarding effective corrective action are fully assessed and resolved.

K. VDEQ Must Consider Sea Level Rise and Flooding Risk.

According to FEMA flood maps, the Lower Ash Pond has a 1% annual chance of flood hazard.[153] The effects of rising seas will exacerbate the problem and increase risk of flooding.[154] VDEQ has not evaluated the increased risk of flooding at the CPS, and should take such factors in consideration.

III. CONCLUSION

In closing, the proposed Draft Permit does not conform to applicable legal requirements and is based on insufficient information. As a result, we respectfully request that DEQ withdraw the draft permit, revise it to address the identified flaws, and thereafter reissue a revised draft permit and provide a complete fact sheet for public comment. In the alternative, we respectfully request that DEQ substantially revise the proposed permit in response to these comments.

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[152] *See* Attachment 43, L. Ruhl, et al., *The Impact of Coal Combustion Residue Effluent on Water Resources: A North Carolina Example*, 46(21) Envt'l. Sci. & Tech. 12226 (Sept. 30, 2012).

[153] Attachment 44, FEMA's National Flood Hazard Layer. The area in blue represents 1-percent annual chance flood hazard.

[154] Attachment 45, Recurrent Flooding Study for Tidewater Virginia, Virginia Institute of Marine Science, (Jan. 2013).

Thank you for your consideration of these comments.

Sincerely,

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Encls:
See Appendix

APPENDIX

Attachment	Title / Description
1	National Park Service, U.S. Dep't of the Interior, Making the Trail Visible and Visitor Ready: Progress on the James River Segment (Dec. 2013).
2	Chesterfield County, Parks and Recreation, Nature Programs - Dutch Gap (available at http://www.chesterfield.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=16214&libID=16207)
3	Chesterfield County, Parks and Recreation, Dutch Gap Conservation Area - Outdoor Programs (available at http://www.chesterfield.gov/DutchGap)
4	Chesterfield County, Parks and Recreation, Dutch Gap Conservation Area & Dutch Gap Boat Landing Map (available at http://www.chesterfield.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=6442483670&libID=6442483670)
5	Black Dog Paddle website (available at http://blackdogpaddle.com/index.html)
6	Mark Fausz, *Health concerns around Dominion flyash permit*, Village News Online (July 13, 2016)
7	Hunter Reardon, *Out of the Depths*, Richmond Magazine (Feb. 26, 2014) (available at http://richmondmagazine.com/news/features/out-of-the-depths-02-26-2014/)
8	Hopewell Virginia System, Virginia American Water (available at http://www.amwater.com/vaaw/about-us/hopewell-water/index.html)
9	James River Association, Chesterfield Power Station
10	Threatened and Endangered Status for Distinct Population Segments of Atlantic Sturgeon in the Northeast Region, 77 Fed. Reg. 5880 (Feb. 6, 2012)
11	Endangered Species Act Section 7 Consultation: Programmatic Biological Opinion on the U.S. Environmental Protection Agency's Issuance and Implementation of the Final Regulations, Section 316(b) of the Clean Water Act, Appendix C: Additional Species Specific Effects Analysis for Species Under Jurisdiction of NMFS
12	Designation of Critical Habitat for the Gulf of Maine, New York Bight, and Chesapeake Bay Distinct Population Segments of Atlantic Sturgeon, 81 Fed. Reg. 35,701 (proposed June 3, 2016)
13	M. Balazik et al., *Empirical Evidence of Fall Spawning by Atlantic Sturgeon in the James River, Virginia*, Transactions of the American Fisheries Society, 141:6, 1465-71 (Oct. 1, 2012)
14	M. Balazik & J. Musick, *Dual Annual Spawning Races in Atlantic Sturgeon*, PLOS One (May 28, 2015)
15	R. Springston, *12-foot sturgeons possible in James River, scientist says*, Richmond Times-Dispatch (Sept. 28, 2013)

Attachment	Title / Description
16	M. Balazik et al., *The Potential for Vessel Interactions with Adult Atlantic Sturgeon in the James River, Virginia*, N. Am. J. of Fisheries Mgmt. 32:1062-69 (Oct. 15, 2012)
17	D. M. Bilkovic et al., *Atlantic Sturgeon Spawning Habitat on the James River, Virginia*, Final Report to NOAA / NOAA Chesapeake Bay Office, Virginia Institute of Marine Science, Center for Coastal Resources Management (Feb. 2009)
18	Atlantic Sturgeon (Ch. 8), *Atlantic Coast Diadromous Fish Habitat: A Review of Utilization, Threats, Recommendations for Conservation, and Research Needs*, Atlantic States Marine Fisheries Commission (Jan. 2009)
19	Atlantic sturgeon Habitat Addendum, Atlantic States Marine Fisheries Commission (Sept. 2012)
20	M. Balazik, *Life History Analysis of James River Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus) with Implications for Management and Recovery of the Species*, Virginia Commonwealth University (2012)
21	J.A. Musick, *Essential Fish Habitat of Atlantic Sturgeon Acipenser oxyrinchus in the Southern Chesapeake Bay*, Final Report to NOAA/NMFS, VIMS Special Scientific Report #145 (Nov. 5, 2005)
22	D. H. Secor and T. E. Gunderson, *Effects of hypoxia and temperature on survival, growth, and respiration of juvenile Atlantic sturgeon*, Acipenser oxyrinchus, Fishery Bulletin 96(3) (1998)
23	Atlantic sturgeon Fact Sheet, Atlantic States Marine Fisheries Commission (available at http://www.asmfc.org/files/Habitat/Species%20factsheets/AtlanticSturgeon.pdf)
24	U.S. Geological Survey, The USGS Water Science School – Water properties: Dissolved oxygen (available at http://water.usgs.gov/edu/dissolvedoxygen.html)
25	Office of Water, U.S. EPA, *Volunteer Stream Monitoring: A Methods Manual 5.2*, EPA 841-B-976-003 (1997) (available at https://www.epa.gov/sites/production/files/2015-06/documents/stream.pdf)
26	National Pollutant Discharge Elimination System—Final Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities, 79 Fed. Reg. 48,300 (Aug. 15, 2014)
27	Email from C. Linderman to B. Trulear re: 316(b) Annual Reporting to the Services (May 13, 2016) with attached spreadsheet
28	Jerre Mohler, *Culture Manual for the Atlantic Sturgeon*, U.S. Fish & Wildlife Service (2003)
29	U.S. EPA, NPDES Permit Writer's Manual (Sept. 2010)
30	Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 80 Fed. Reg. 67,838 (Nov. 3, 2015)

Attachment	Title / Description
31	Letter from M. Nuhfer, Chief, Municipal & Industrial NPDES Section, EPA Region 4 to J. Poupart, Chief, Permitting Section, Division of Water Quality, North Carolina Department of Environment & Natural Resources (Sep. 16, 2014)
32	N.C. Dep't of Envtl. Quality, Fact Sheet for the NPDES Permit Development for Riverbend Steam Station, NPDES No. NC0004961 (May 21, 2014) (available at http://edocs.deq.nc.gov/WaterResources/0/doc/266377/Page1.aspx)
33	N.C. Dep't of Envt'l. Quality, Final Permit for Riverbend Steam Station, NPDES Permit No. NC0004961 (available at http://portal.ncdenr.org/c/document_library/get_file?p_l_id=1169848&folderId=1837865&name=DLFE-122176.pdf)
34	Report of Randall Grachek, Evaluation of Permit Requirements for Wastewater Discharge from Coal Ash Pond Closure - Dominion Power Company, Chesterfield Power Station (July 21, 2016)
35	Weekly Water Testing Results, Bremo Power Station
36	Weekly Water Testing Results, Possum Point Power Station
37	Guidance Memo No. 00-2011, Guidance on Preparing VPDES Permit Limits
38	VDEQ, TMDL Guidance Memo No. 09-2001 (Mar. 6, 2009)
39	VDEQ, TMDL Guidance Memo No. 09-2001, Amendment No. 1 (Nov. 1, 2011)
40	Photographs taken by Jamie Brunkow, James River Association at Farrar Gut (Oct. 24, 2014 – Apr. 5, 2016)
41	Hydroqual Study and Other Documents in Support of Thermal Variance (2003)
42	Shields et al., Still too hot: Examination of water temperature and water heater characteristics 24 years after manufacturers adopt voluntary temperature setting, 34 J. Burn Care Res. 281-87 (Mar. 2014)
43	L. Ruhl, et al., The Impact of Coal Combustion Residue Effluent on Water Resources: A North Carolina Example, 46(21) Envt'l. Sci. & Tech. 12226 (Sept. 30, 2012)
44	FEMA's National Flood Hazard Layer (available at http://www.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30&extent=-77.4062,37.3532,-77.3436,37.3821)
45	Recurrent Flooding Study for Tidewater Virginia, Virginia Institute of Marine Science, (Jan. 2013)
46	F.J. Dwyer, et al., *Assessing Contaminant Sensitivity of American Shad, Atlantic Sturgeon and Shortnose Sturgeon*, U.S. Geological Survey, Columbia Environmental Research Center (2000)
47	F.J. Dwyer, et al., *Assessing Contaminant Sensitivity of Endangered and Threatened Aquatic Species: Part III. Effluent Toxicity Tests*, Arch. Envt'l Contam. Toxicol. 48, 174-83 (2005)

Attachment	Title / Description
48	S.J. Te, et al., *Bioaccumulation and chronic toxicity of dietary L-selenomethonine in juvenile white sturgeon, Acipenser transmontanus*, Aquatic Toxicology (Nov. 2006)
49	S. Heidary, et al., *Bioaccumulation of heavy metals Cu, Zn, and Hg in muscles and liver of the stellate sturgeon in the Caspian Sea and their correlation with growth parameters*, Iranian J. of Fisheries Sciences (Nov. 2011)
50	NOAA's National Marine Fisheries Service, Endangered Species Act Section 7 Consultation, Biological Opinion (Apr. 10, 2013)
51	Letter from U.S. Fish and Wildlife Service, Virginia Field Office, to Mark Trent, Virginia Department of Environmental Quality, Southwest Regional Office, Re: Appalachian Power Company Clinch River Plant (VPDES VA0001015) 316(b) Coordination, Russell County, VA, Project # 2015-I-2237, at p. 3 (July 16, 2015)
52	R. Stewart, et al., *Horizontal cooling towers: riverine ecosystem services and the fate of thermoelectric heat in the contemporary Northeast US*, IOP Publishing, Envt'l Res. Letter 8 (2013)

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From: Bridget Lee <bridget.lee@sierraclub.org>
Sent: Thursday, July 21, 2016 4:13 PM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Lane Johnson
Subject: Sierra Club Comments on Draft VPDES Permit No. VA0004146 (Chesterfield)
Attachments: 2016.07.21_Sierra Club Comments on Chesterfield VPDES Permit.pdf

Dear Mr. Bryan,

Please find attached the Sierra Club's comments on the draft VPDES permit for the Dominion Chesterfield Power Station.

Best regards,

Bridget

--
Bridget Lee
Staff Attorney
Sierra Club
50 F Street, NW, 8th Floor
Washington, DC 20001
202-675-6275
202-547-6009 (fax)
bridget.lee@sierraclub.org

Bryan, Joseph (DEQ)

From: Mary-Stuart Torbeck <mary-stuart.torbeck@sierraclub.org>
Sent: Thursday, July 21, 2016 4:56 PM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Mary-Stuart Torbeck
Subject: Sierra Club Comments from Members and Supporters for Permit No. VA0004146
Attachments: Sierra Club Comments on Chesterfield VPDES Permit.pdf

Dear Mr. Bryan,

The Sierra Club is an environmental organization with more than 1.3 million members. Inspired by nature, we work together to protect our communities and the planet. Founded in 1892, the Club is America's oldest, largest and most influential grassroots environmental organization. Our mission is to: (1) Explore, enjoy, and protect the wild places of the earth; (2) Practice and promote the responsible use of the earth's ecosystems and resources; (3) Educate and enlist humanity to protect and restore the quality of the natural and human environment; and (4) Use all lawful means to carry out these objectives.

Please find attached the Sierra Club members and supporters names, addresses, and telephone numbers in regard to the Draft Virginia Pollutant Discharge Elimination System Permit for Virginia Electric and Power Company's Dominion Chesterfield Power Station, Permit No. VA0004146. Thank you so much for your careful consideration of these comments and the numerous citizens who feel strongly that this permit needs further amendments before being approved by the State Water Control Board.

Thank you,

Mary-Stuart Torbeck

--
Mary-Stuart Torbeck
Richmond Community Outreach Coordinator
Virginia Sierra Club
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Interested in Joining a RVA Climate Action Team?

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VIRGINIA CHAPTER

July 21, 2016

Via E-Mail to ChesterfieldPowerStationWaterPermit@deq.virginia.gov

Joseph Bryan
Virginia Department of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060

Re: Comments on the Draft Virginia Pollutant Discharge Elimination System Permit for Virginia Electric and Power Company's Dominion Chesterfield Power Station, Permit No. VA0004146

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Thank you so much for your careful consideration of these comments and the numerous citizens who feel strongly that this permit needs further amendments before being approved by the State Water Control Board.

Thank you,

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July 21, 2016

Via E-Mail to ChesterfieldPowerStationWaterPermit@deq.virginia.gov

Joseph Bryan
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Piedmont Regional Office
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Glen Allen, VA 23060

Re: Comments on the Draft Virginia Pollutant Discharge Elimination System Permit for Virginia Electric and Power Company's Dominion Chesterfield Power Station, Permit No. VA0004146

Dear Mr. Bryan,

On behalf of our Virginia members and supporters, the Sierra Club respectfully submits these comments regarding the draft Virginia Pollutant Discharge Elimination System ("VPDES") Permit for Virginia Electric and Power Company's Dominion Chesterfield Power Station ("Chesterfield" or the "Plant"), Permit No. VA0004146 ("Draft Permit"), noticed for public comment by the Virginia Department of Environmental Quality ("VDEQ").

As set forth below, the Draft Permit violates the Clean Water Act because it fails to require a closed-cycle cooling system and, instead, authorizes the intake of cooling water through structures that threaten aquatic life, including a federally-listed endangered species, it fails to impose necessary limits on the discharge of polluted wastewater into adjacent waterbodies, and it allows for an extended compliance timeline for new effluent limitations without adequate justification. Given these and other defects in the Draft Permit identified below (as well as those discussed more fully in comments submitted by the Southern Environmental Law Center, which we hereby incorporate fully be reference), we urge VDEQ to withdraw the Draft Permit, revise it to address such defects, and reissue it for public comment.

I. BACKGROUND

A. Dominion Chesterfield Power Station

With the ability to generate more than 1,750 megawatts of energy, Chesterfield is the largest fossil-fueled power station in Virginia. The Plant has four large coal-fired boilers that came online between 1952 and 1969 and two natural gas combined cycle units that began operation in 1990 and 1992. The Plant withdraws large quantities of water from the adjacent James River for cooling and steam generation purposes and returns the water to the river at

exceedingly high temperatures—a process known as "once-through cooling." The Plant is equipped with flue gas desulfurization ("FGD") systems (or "scrubbers") and with selective catalytic reduction ("SCR") systems. These systems remove pollutants from the Plant's exhaust gases, including sulfur dioxide, nitrogen oxides, and mercury, but their operation results in the generation of coal combustion residuals and wastewater streams with higher concentrations of toxic pollutants.

The Plant is located on the James River in Chesterfield County, about 15 miles south of Richmond, Virginia and discharges its pollutant-laden wastewater directly into the James and its tributaries—waterbodies frequented by members of the community for recreational purposes. Chesterfield currently discharges wastewater from its coal ash ponds, metals treatment basin, FGD wastewater treatment plant, FGD runoff collection system, and coal pile runoff into Farrar Gut, a tributary of the James River.[1] In addition, the Plant discharges its cooling water, at temperatures as high as 129 degrees Fahrenheit, directly into the James and Farrar Gut.[2]

Coal combustion residuals (or "coal ash"), including fly and bottom ash, are stored in two on-site, unlined surface impoundments, or coal ash ponds. The lower ash pond, which was built in 1964, receives an estimated 10 million gallons per day of ash and ash transport water via sluicing from the Plant. The pond contains roughly 2,335,500 cubic yards of coal ash and discharges wastewater into Farrar Gut. The upper ash pond, constructed in 1983, holds approximately 11,150,000 cubic yards of coal ash and currently is undergoing closure procedures. In response to new federal regulations governing the disposal of coal ash, Dominion plans to convert the coal ash management system at Chesterfield from a wet to a dry system.[3] Following such conversion, Dominion will close the two coal ash ponds located at the facility.[4] During pond closure, wastewater from the ponds will be discharged into the James River.

B. Governing Law and Regulations

In enacting the Clean Water Act, Congress established as a national goal the elimination of all discharges of pollution into navigable waters.[5] The Act's implementing regulations are designed to ensure that this ambitious goal will be met and, to this end, establish the National Pollutant Discharge Elimination System ("NPDES") permitting program. Under this program, no pollutant may be discharged from any point source without a NPDES permit, and any failure to comply with such a permit constitutes a violation of the Clean Water Act.[6] The NPDES permit program is an integral part of the Act's plan to eliminate pollution discharges and restore and maintain the health and integrity of the nation's waters.[7] In Virginia, the Department of Environmental Quality and the State Water Control Board are tasked with ensuring the

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[1] *See* VPDES Permit Fact Sheet (hereinafter "Permit Fact Sheet") at 6.

[2] *See id.*, Attachment 4.a.

[3] *See id.* at 4.

[4] *See id.*

[5] 33 U.S.C. § 1251(a)(1).

[6] 33 U.S.C. §§ 1311(a) and 1342(a); 40 C.F.R. § 122.41(a).

[7] 33 U.S.C. § 1342.

requirements of the federal permit program are met through the operation of the Virginia Pollutant Discharge Elimination System permitting program.[8]

1. Technology Requirements

The Clean Water Act requires that NPDES permits include effluent limits based on the performance achievable through the use of statutorily-prescribed levels of technology that "will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants."[9] Technology-based effluent limitations ("TBELs") constitute a minimum level of controls that must be included in a NPDES permit "regardless of a discharge's effect on water quality."[10]

For sources constructed prior to the passage of the Federal Water Pollution Control Act of 1972 such as Chesterfield, discharges of pollutants must be eliminated or controlled through application of Best Available Technology ("BAT").[11] In accordance with the Act's goal to eliminate all discharges of pollutants, BAT limits "shall require the elimination of discharges of all pollutants if the Administrator finds, on the basis of information available to him . . . that such elimination is technologically and economically achievable . . . ."[12]

The requirement to meet the BAT standard is ongoing, it compels polluting industries to meet ever more stringent limitations on the path towards complete elimination of water pollution.[13] With each renewal of a NPDES permit, the permitting agency must reconsider whether further pollution reductions are attainable. The goal of the law is continuous, rapid improvement:

> The BAT standard reflects the intention of Congress to use the latest scientific research and technology in setting effluent limits, pushing industries toward the goal of zero discharge as quickly as possible. In setting BAT, EPA uses not the average plant, but the optimally operating plant, the pilot plant which acts as a beacon to show what is possible.[14]

The U.S. Environmental Protection Agency ("EPA") often codifies effluent limitation guidelines ("ELGs") that reflect the BAT standards for particular discharges, pollutants, and activities found in a category of point sources. These guidelines become the floor—the minimum level of control that must be imposed in a NPDES permit. But where EPA has not set ELGs for a pollutant or source or particular activity, or where such guidelines are inadequate, a state-

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[8] *See* 9 VA. ADMIN. CODE § 25-260-186.

[9] 33 U.S.C. § 1311(b)(2)(A)(i), *see also id.* § 1311(b)(1)(A).

[10] *Am. Petroleum Inst. v. EPA*, 661 F.2d 340, 344 (5th Cir. 1981).

[11] *See* 33 U.S.C. § 1311(b)(2)(A).

[12] 33 U.S.C. § 1311(b)(2)(A).

[13] *See NRDC v. EPA*, 822 F.2d 104, 123 (D.C. Cir. 1987).

[14] *Kennecott v. EPA*, 780 F.2d 445, 448 (4th Cir. 1985), citing 1 *Legislative History of the Federal Water Pollution Control Act of 1972*, 798 (Committee Print compiled for the Senate Committee on Public Works by the Library of Congress), Ser. No. 93-1 (1973).

permitting agency must promulgate permit effluent limitations, in accordance with BAT, on a case-by-case basis.[15] In doing so, the state agency is bound by the same factors that EPA is required to apply in determining and applying BAT limits in a permit.[16] These factors are:

i. age of equipment and facilities involved,
ii. the process employed,
iii. the engineering aspects of the application of various types of control techniques,
iv. process changes,
v. the cost of achieving such effluent reduction,
vi. non-water quality environmental impact (including energy requirements).[17]

In applying these factors to identify the best available technology that is economically achievable, the agency must consider the best state of the art practices in the industry and beyond. "Congress intended these [BAT] limitations to be based on the performance of the single best-performing plant in an industrial field."[18]

A technology is considered "available" where there is, has been, or could feasibly be use within an industry. Courts have explained that even where "no plant in a given industry has adopted a pollution control device which could be installed does not mean that the device is not 'available,'" thus ensuring that industry cannot game the system by all agreeing to not adopt the latest, best pollution control technology.[19] A discharger of pollutants may also be required to transfer a particular technology that has been used in another context where the transfer is practicable. Likewise, a technology is "economically achievable" under the BAT standard if it is affordable for the best-run facility within an industry.[20] "BAT should represent a commitment of the maximum resources economically possible to the ultimate goal of eliminating all polluting discharges."[21]

2. Water Quality Requirements

One of the most important functions that a state performs under the Clean Water Act is to promulgate water quality standards.[22] Water quality standards consist of both "designated 'uses' for a body of water (e.g., public water supply, recreation, agriculture) and a set of 'criteria'

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[15] *See* 40 C.F.R. § 125.3(c)(2) & (3); *see also Texas Oil & Gas Ass'n v. EPA*, 161 F.3d 923, 928-29 (5th Cir. 1998).

[16] *See* 33 U.S.C. §§ 1311(b) & 1342(b); *see also Natural Res. Def. Council v. EPA*, 859 F.2d 156, 183 (D.C. Cir. 1988).

[17] 33 U.S.C. § 1314(b)(2)(B).

[18] *Chem. Mfrs. Ass'n v. EPA*, 870 F.2d 177, 226 (5th Cir. 1989).

[19] *Hooker Chems. & Plastics Corp. v. Train*, 537 F.2d 620, 636 (2d Cir. 1976).

[20] *See, e.g., Reynolds Metals Co. v. EPA*, 760 F.2d 549, 562 (4th Cir. 1985); *Tanner's Council of Am. v. Train*, 540 F.2d 1188, 1191–92 (4th Cir. 1976).

[21] *Natural Res. Def. Council v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988) (quotations omitted); *see also EPA v. Nat'l Crushed Stone Ass'n*, 449 U.S. 64, 74–75 (1980) (if a discharger of pollutants can afford the best available technology, then it must meet, and should not be allowed a variance from, stringent BAT limits).

[22] *See* 33 U.S.C. §§ 1313(a)–(c) (requiring states to adopt water quality standards and requiring EPA to set water quality standards when states fail to do so).

specifying the maximum concentration of pollutants that may be present in the water without impairing its suitability for designated uses."[23]

After application of the most stringent treatment technologies available under the BAT standard, if a discharge causes or contributes, or has the reasonable potential to cause or contribute to a violation of water quality standards, the permitting agency must also include any limits in the NPDES permits necessary to ensure that water quality standards (both narrative and numeric) are maintained and not violated—these limits are generally referred to as Water Quality Based Effluent Limits ("WQBELs").[24]

3. Thermal Discharges

EPA acknowledges that "thermal pollution has long been recognized to cause harm to the structure and function of aquatic ecosystems."[25] Accordingly, heat is defined as a pollutant subject to technology-based BAT limits[26] and heated industrial wastewater may not be discharged without a NPDES permit.[27] Permits ordinarily must impose effluent limits on heated wastewater stringent enough to satisfy water quality standards for temperature.

In addition, states are required to identify waterbodies for which technology-based thermal controls are insufficient "to assure protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife" and to impose more stringent "total maximum daily thermal loads" and water quality-based effluent limitations for heat in order to ensure that the receiving water meets water quality criteria.[28] Conversely, the Clean Water Act also authorizes state permitting agencies to lower the default technology-based thermal discharge limits in NPDES permits—known commonly as Section 316(a) thermal variance, but only if the owner or operator of a source is able to demonstrate that the proposed technology-based thermal effluent limitation is more stringent than necessary to protect a balanced, indigenous ecosystem.[29]

A "balanced indigenous population" is defined by EPA regulations to mean "a biotic community typically characterized by diversity, the capacity to sustain itself through cyclic seasonal changes, presence of necessary food chain species and by a lack of domination by

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[23] *American Paper Inst. v. EPA*, 996 F.2d 346, 349 (D.C. Cir. 1993); *see* 33 U.S.C. § 1313(c)(2)(A).

[24] *See* 40 C.F.R. § 122.44(d). "[T]he permit must contain effluent limits" for any pollutant for which the state determines there is a reasonable potential for the pollutant to cause or contribute to a violation. *Id.* § 122.44(d)(1)(iii); *see also Am. Paper Inst. v. EPA*, 996 F.2d 346, 350 (D.C. Cir. 1993); *Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d. Cir. 2005).

[25] EPA, National Pollutant Discharge Elimination System – Cooling Water Intake Structures at Existing Facilities and Phase I Facilities, 76 Fed. Reg. 22174, 22,246 (proposed Apr. 20, 2011).

[26] *See* 33 U.S.C. §§ 1311(b)(2)(F) (requiring that BAT effluent limitations be established for all non-toxic pollutants by 1989), 1362(6) (defining "pollutant" to include heat); *see also* N.J.S.A. § 58:10A-3(n) (defining "pollutant" to include "thermal waste").

[27] 33 U.S.C. § 1342; *see also* 40 C.F.R. § 122.2.

[28] 33 U.S.C. § 1313(d) (requiring states to identify bodies of water for which technology-based thermal controls are insufficiently stringent and to impose "total maximum daily thermal loads" to protect these waters); *see also id.* § 1312 (requiring imposition of water quality-based effluent limitations on the discharge of pollutants when necessary to meet water quality standards).

[29] *See* 33 U.S.C. § 1326(a).

pollution tolerant species."[30] To determine what a balanced indigenous population must look like, the permitting authority must consider what species would inhabit the receiving water body if it were not degraded by thermal discharges.[31]

In Virginia, state regulations implementing Section 316(a) dictate that "[t]he temperature limits set forth in 9 VAC 25-260-50 through 9 VAC 25-260-80 may be superseded in certain locations where a thermal variance demonstration is performed in accordance with § 316(a) of the Clean Water Act."[32] "A successful demonstration must assure the protection and propagation of a balanced indigenous population of aquatic species and wildlife in or on the water into which the discharge is made."[33]

In addition, EPA regulations provide that "[a]t the expiration of the permit, any discharger holding a Section 316(a) variance should be prepared to support the continuation of the variance with studies based on the discharger's actual operation experience."[34] That is, the decision to renew, or not renew, any Section 316(a) alternate limitation must be made independently of any decision in a previous permitting process.

4. Cooling Water Systems

Section 316(b) of the Clean Water Act requires that the "location, design, construction, and capacity of cooling water intake structures reflect the best technology available ["BTA"] for minimizing adverse environmental impact"—including impingement, entrainment, and increased water temperature.[35] As with all technology-based standards, dischargers must comply with Section 316(b)'s technology-based effluent limitations immediately, meaning that Chesterfield should have been brought into compliance long ago. The Plant now must be brought into compliance with Section 316(b) "as soon as possible," and, in the interim, must be subject to "interim requirements and dates for their achievement."[36]

In 2004, EPA published regulations designed to implement Section 316(b) at existing power plants like Chesterfield. Following legal challenges, however, the Second Circuit remanded numerous aspects of the rule to the EPA.[37] The U.S. Supreme Court reviewed the Second Circuit's decision on the limited issue of whether Section 316 authorizes EPA to balance costs and benefits.[38] Other aspects of the *Riverkeeper II* decision were not addressed by the Supreme Court's review. In response to the Second Circuit's remand of extensive portions of the rule, EPA withdrew the entire regulation for existing facilities so that it could revise the rule to

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[30] 40 C.F.R. § 125.71(c).

[31] *In re Dominion Energy Brayton Point, L.L.C.*, 2006 WL 3361084 at *89–93.

[32] 9 VAC 25-260-90.

[33] *Id.*

[34] 40 C.F.R. § 125.72 (note).

[35] 33 U.S.C. § 1326(b).

[36] 40 C.F.R. § 122.47(a); *see also* 33 U.S.C. § 1311(b).

[37] *See Riverkeeper Inc. v. U.S. Envtl. Prot. Agency*, 475 F.3d 83 (2d Cir. 2007) [hereinafter *Riverkeeper II*].

[38] *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208 (2009).

be consistent with the Clean Water Act.[39] Notwithstanding the withdrawal of those rules, EPA instructed states that they could not lawfully delay NPDES permitting or fail to include BTA determinations in NPDES permits, and that they should continue to make BTA determinations and implement Section 316(b) of the Clean Water Act on the basis that they had for forty years—using their best professional judgment ("BPJ").[40]

On May 19, 2014, the EPA Administrator signed a new final rule implementing Section 316(b) of the Clean Water Act at existing facilities.[41] This rule requires existing facilities to adhere to one of seven compliance options as BTA for impingement and mortality reduction and requires VDEQ to establish a BTA-based standard for entrainment using BPJ. Facilities like Chesterfield are required to submit an application at the same time as their NPDES permit renewal application with information supporting entrainment and impingement technology decisions.[42] However, facilities with permits expiring before July 14, 2018 may request an alternative schedule for information submittal, which will be granted only if "the owner or operator of the facility demonstrates that it could not develop the required information by the applicable date for submission."[43] When an alternative schedule has been granted, the permitting agency must still establish interim BTA requirements in the permit using BPJ on a site-specific basis.[44] As discussed further below, the new rule does not alter the inevitability of the conclusion that closed-cycle cooling is the best technology available to reduce the adverse environmental impacts of Chesterfield's cooling system.

II. THE DRAFT PERMIT VIOLATES THE CLEAN WATER ACT

A. The Draft Permit Fails to Require the Best Cooling System Technology Available.

The Draft Permit violates the Clean Water Act because it allows Dominion to continue use of a decades-old, open-cycle cooling system at the Plant that threatens Atlantic sturgeon and other aquatic life. Chesterfield is not currently minimizing the adverse environmental impacts of its cooling system through the use of the best technology available. Closed-cycle recirculating systems have been found to constitute BTA for reducing the facility's discharges of waste heat into the receiving waters. Thus, the Draft Permit should be revised to require a closed-cycle system.

In renewing the VPDES permit for Chesterfield, federal law requires VDEQ to ensure that the potential harm from the Plant's cooling water system to aquatic life—and particularly to

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[39] *See* EPA, National Pollutant Discharge Elimination System—Suspension of Regulations Establishing Requirements for Cooling Water Intake Structures at Phase II Existing Facilities; Suspension of Final Rule, 72 Fed. Reg. 37,107 (July 9, 2007).

[40] *See* EPA Memorandum from Benjamin Grumbles, *Implementation of the Decision in Riverkeeper, Inc. v. EPA, Remanding the Cooling Water Intake Structures Phase II Regulation* (March 20, 2007) ("all permits for Phase II [existing] facilities should include conditions under section 316(b) of the CWA developed on a Best Professional Judgment basis.").

[41] 79 Fed. Reg. 48,300.

[42] 40 C.F.R. § 122.21.

[43] 40 C.F.R. § 125.95(a)(2).

[44] 40 C.F.R. §125.98(6).

endangered species—is reduced down to levels commensurate with the performance of the best technology available.[45] A number of permitting authorities have already determined that a closed-cycle cooling system is BTA for facilities like Chesterfield. For example, EPA recently determined that closed-cycle cooling was BTA for the Merrimack Station coal-fired power plant in Bow, New Hampshire.[46] At another plant, EPA's Environmental Appeals Board has upheld a permit provision that "would essentially require closed cycle cooling [i.e., cooling towers] for the entire station" as BTA.[47] State permitting authorities have likewise concluded that closed-cycle cooling at plants like Chesterfield constitutes the required BTA for compliance with Clean Water Act-mandated reductions in impingement and entrainment under 316(b).[48]

No attempt appears to have been made on the part of VDEQ to actually determine BTA for Chesterfield. Rather, VDEQ points to a decade-old study used to establish "interim BTA" measures—a curtain wall, traveling screens, spray wash systems and debris return[49]—which provide nowhere near the level of protection of aquatic life as would a closed-cycle system. The inadequacy of such measures is underscored by the presence of Atlantic sturgeon spawning habitat near the Plant and the entrainment and death (i.e., a take under the Endangered Species Act) of two Atlantic sturgeon larvae in October 2015. Only a closed-cycle system will guarantee that the survival and recovery of this species is not jeopardized by Plant operation.

Facilities like Chesterfield are required to submit data supporting entrainment and impingement decisions when they submit NPDES renewal applications. Dominion requested an alternative schedule for submission of this information on April 29, 2015 for Chesterfield, claiming that it needed additional time to conduct an entrainment characterization study (to begin this summer and to take approximately two years) followed by three additional studies.[50] VDEQ granted this request and set a new date for submission 270 days prior to the expiration of the reissued permit.[51] This extension is unreasonable. In addition to the fact that close-cycle cooling has been well established as BTA for plants like Chesterfield, EPA's Section 316(b) rule was

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[45] *See* 33 U.S.C. § 1326(b) (requiring that "the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact."); *see also* Endangered Species Act, 16 U.S.C. § 1539 (requiring that private entities whose actions are deemed lawful but nonetheless kill members of an endangered species are required to act to the maximum extent practicable to reduce harm to the species).

[46] *See* EPA, Merrimack Station Draft NPDES Permit, *available at* www.epa.gov/region1/npdes/merrimackstation/ ("EPA has determined that upgrading Merrimack Station's decades-old open-cycle cooling system to a closed-cycle system is the best available technology for reducing the facility's discharges of waste heat.").

[47] *See In re Dominion Energy Brayton Point, L.L.C., NPDES Appeal*, 03-12, slip op. at 19 (E.A.B. Feb. 1, 2006), 12 E.A.D. 490; Mirant Canal Station Final NPDES Permit (noting EPA Region 1's requirement for implementation of closed cycle cooling at the Mirant Canal Station Power Plant), *available at* www3.epa.gov/region1/npdes/mirantcanal.

[48] *See, e.g.*, SPDES Fact Sheet Narrative 4 (*noting* New York Department of Environmental Conservation's requirement for implementation of closed cycle cooling at the E.F. Barrett Power Station), *available at* www.gracelinks.org/996; DEP Permit Calls for Oyster Creek Nuclear Plant to Build Cooling Towers (noting New Jersey Department of Environmental Protection's requirement for implementation of closed cycle cooling at the Oyster Creek Power Plant), *available at* www.nj.gov/dep/newsrel/2010/10_0001.htm.

[49] Draft Permit at 34

[50] Permit Fact Sheet, Attachment 7.

[51] Draft Permit, Part I.D.3; Permit Fact Sheet at 26–27.

signed over two years ago. Dominion submitted its VPDES renewal application for Chesterfield in 2009 and continued to supplement that application with additional material into 2016. Therefore, Dominion has been on notice of these requirements and has had plenty of time to prepare for compliance. VDEQ is only required to establish an alternative schedule if a permit applicant "demonstrates that it *could not* develop the required information by the applicable date for submission."[52] Dominion has made no such demonstration and offers no evidence that it even attempted to develop this information. In fact, Dominion offers no explanation whatsoever for its decision to wait to begin conducting these studies until this summer. Thus VDEQ has no obligation to grant such an extension.

Given the significant adverse environmental impacts from impingement and entrainment, the ineffectiveness of current and proposed mitigation measures in protecting larvae and endangered species, and the deficiencies in Dominion's outdated biological studies, it would be arbitrary, capricious, unreasonable and a violation of the Clean Water Act for VDEQ to conclude, in renewing the VPDES permit for Chesterfield, that operation of the cooling water intake system will minimize adverse environmental impacts of impingement and entrainment. VDEQ should require Dominion to retrofit its Chesterfield facility to include a closed-cycle recirculating system, in order to reduce impingement, entrainment and associated mortality.

B. The Draft Permit Fails to Include Requisite Water Quality-Based Effluent Limitations for Discharges of Thermal Pollution.

The Draft Permit fails to impose requisite limits on thermal discharges from the Plant. Instead, VDEQ proposes to carry forward the Section 316(a) thermal variance that was approved in 2004.[53] The four sentences VDEQ offers as justification for the continuance of the variance in this permit reissuance fail to demonstrate that a limit would be "more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife."[54] Thus, VDEQ should reevaluate the variance and require Dominion to limit the amount of hot water it discharges. Requiring the installation and operation of a closed-cycle cooling system will ensure the protection of aquatic life from the Plant's dangerous heat pollution.

A decision to continue a Section 316(a) variance must be made independent of prior decisions, and permit applicants seeking such continuance must offer supporting evidence.[55] Here, Dominion simply refers back to old studies and asserts—without any corroborative evidence—that "Dominion believes that the data generated during our 316(a) studies remains representative for the James River and for our station operations."[56] The data to which Dominion now refers is over a decade old—the most recent studies were completed in 2003, and the oldest date back to 1996. Reliance on such outdated data cannot be justified. Notably (and as discussed

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[52] 40 C.F.R. § 125.95(a)(2) (emphasis added).

[53] *See* Draft Permit; Permit Fact Sheet, Attachment 7.

[54] *See id.*

[55] *See* 40 C.F.R § 125.72 (note) ("At the expiration of the permit, any discharger holding a section 316(a) variance should be prepared to support the continuation of the variance with studies based on the discharger's actual operation experience.").

[56] *Id.*

in greater detail in comments submitted by the Southern Environmental Law Center), in 2003, data regarding the spawning of Atlantic sturgeon in James River were not available. This new information warrants a new study of the Plant's impacts on aquatic life before any variance is granted.

In addition, Dominion's claims regarding the lack of any change in Plant operations or stream characteristics are unsupported by the record. Indeed, the Plant has undergone material changes since the variance was first granted. Since that time, Dominion has installed new pollution control systems and appears to be discharging more and hotter wastewater via Outfall 003. With regard to the status of the James River, neither Dominion nor VDEQ give any consideration to the recent warming trend in ambient temperatures experienced in Virginia and across the globe due to climate change, which has resulted in higher water temperatures and lower flows in rivers and streams nationwide. When determining whether a variance from thermal limits is justified, VDEQ must consider experienced and predicted impacts of climate change on the James River.

Given the insufficiency of evidence in the record supporting a Section 316(a) variance, Dominion must conduct and submit new studies that ensure the balanced, indigenous fish populations of the James River are not negatively affected by the Plant's discharges. Any final permit must include limits on thermal discharges that satisfy the requirements of the Clean Water Act and protect the water quality of Farrar Gut and the James River.

C. The Draft Permit Lacks Requisite Technology-Based Limitations on the Discharge of Pollutants in the Plant's Wastewater.

The Clean Water Act requires that state NPDES permits include technology-based standards for arsenic and other metals discharged in the Plant's wastewater. The fact that EPA has adopted new effluent limitations guidelines for power plant wastewater discharges does not alter this requirement. The new ELGs govern the discharge of pollutants from FGD wastewater and ash transport water, among other wastestreams. They do not apply to discharges of wastewater from inactive coal ash surface impoundments or to the decanting and dewatering of such impoundments.

Because EPA has not established any technology-based standard for pollutants present in legacy wastewater other than total suspended solids, oil, and grease, VDEQ must use its best professional judgment to determine TBELs at individual facilities. In North Carolina, EPA called for the establishment of TBELs for decanting and dewatering discharges from the inactive coal ash ponds at Duke Energy's L.V. Sutton Steam Station. Limits on the discharge of arsenic and mercury that North Carolina has imposed via its NPDES permits are far more stringent than those proposed in the Draft Permit. Given the achievability of such limits at similar facilities in a neighboring state, VDEQ cannot escape its obligation to impose similarly stringent limits here.

Indeed, Dominion should have no problem complying with stronger limits if it installs advanced wastewater treatment systems similar to those it already has constructed at its Bremo and Possum Point facilities. These systems have proven effective at reducing concentrations of coal ash contaminants including arsenic, chromium, lead, mercury, and selenium. Thus,

treatment options other than the settling of suspended pollutants in an unlined pond are available, effective, and economically feasible. The Draft Permit, however, sets limits based on water quality in the receiving waterway beyond a mixing zone. This is improper. WQBELs are appropriate when TBELs are insufficient to protect water quality. Here, VDEQ fails to even consider what constitutes the best available technology on which to base a numeric limit.

Nevertheless, the proposed WQBELs themselves are insufficiently stringent and will not ensure the protection of aquatic life and human health. VDEQ assumes that, because dewatering discharges will mix with cooling water effluent and will eventually be diluted in the receiving waterway, the too-low permit limits are sufficient. This is wrong. Instead of relying on dilution as a treatment strategy, VDEQ should revise the Draft Permit to include technology-based limits that will protect the surrounding environment from Dominion's toxic discharges. Further, the reliance on a mixing zone is improper where endangered species are present or in tidal waters.

D. The Proposed Deadline for Compliance with New Effluent Limitations Is Not Justified.

As discussed above, new federal regulations establish technology-based effluent limitations on the discharge of certain pollutants in fly ash transport water, bottom ash transport water, and wastewater from FGD systems.[57] These limits must be met "as soon as possible beginning November 1, 2018, but no later than December 21, 2023."[58] Nevertheless, VDEQ proposes to allow the Plant to continue its toxic wastewater discharges until March 29, 2022—that is, for an additional three years and four months beyond EPA's default compliance date, more than five and a half years from now.

Although EPA has left to state permitting authorities the responsibility of determining when the new limits will apply, EPA presumes that the "as soon as possible" date means November 1, 2018, "unless the permitting authority establishes a later date, after receiving information from the discharger . . . ."[59] Any determination that a later date is appropriate must be well documented and reflect consideration, at a minimum, of the specific factors set forth in EPA's regulations.[60] To be clear, the phrase "as soon as possible" means November 1, 2018, unless the permitting authority establishes a later date after receiving information from the discharger and after making an independent judgment regarding the appropriateness of an extended compliance timeline.[61] Indeed, "even after the permitting authority receives information from the discharger, it still may be appropriate to determine that November 1, 2018, is 'as soon as possible' for that discharger."[62]

Importantly, EPA encourages permitting authorities to "provide a well-documented justification for how [they] determined the 'as soon as possible' date in the fact sheet or

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[57] 40 C.F.R. § 423.13.

[58] *Id.*

[59] 40 C.F.R. §423.11(t).

[60] *See id.*

[61] 80 Fed. Reg. at 67,883.

[62] *Id.* at 67,883, fn 57.

administrative record for the permit," and to "explain why allowing additional time to meet the limitations is appropriate," if that is the authority's conclusion.[63] Here, VDEQ has devoted no more than a few sentences to explaining why allowing additional time for compliance is appropriate and has failed to provide any documentation of its justification for additional time.[64] Rather than exercising any independent judgment or attempting to verify any of the information submitted by the permitee, VDEQ simply has concurred with the judgment Dominion has made. This is improper.

In addition, there is ample evidence supporting a sooner compliance date. According to EPA, "EPA's record demonstrates that plants typically have one or two planned shut-downs annually and that the length of these shutdowns is more than adequate to complete installation of relevant treatment and control technologies."[65] There are several examples of plants that have completed fly and bottom ash conversion projects in less than the nearly six years contemplated by the Draft Permit. At Duke Energy's Mayo Plant in North Carolina, wet-to-dry bottom ash handling system conversion was completed in under a year and a half.[66] At the South Carolina Electric & Gas Company Wateree plant, conversion to a closed-loop bottom ash handling system was completed in two and a half years.[67] In comments filed on the proposed rule, UWAG provided a case study of a >850 MW unit converting from wet handling to dry handling, in which the total time required from the start of conceptual engineering was 30–36 months.[68] For FGD wastewater treatment systems, the American Public Power Association has estimated that installation could be completed in six to eight months.[69] At Duke Energy's Mayo Plant, a partial zero liquid discharge system for FGD wastewater was completed in approximately two years.[70]

Dominion has been aware of the forthcoming need to comply with the new effluent limits since at least September 2015—when the final federal rules were published—and should already have begun evaluating what changes would be needed at Chesterfield and its other plants and raising the necessary capital. As EPA stated in September 2015: "Regardless of when a plant's NPDES permit is ready for renewal, the plant should *immediately* begin evaluating how it intends to comply with the requirements of the final ELGs. In cases where significant changes in

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[63] *See* EPA, Technical Development Document for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (Sept. 2015), at p. 1411.

[64] *See* Permit Fact Sheet at 21.

[65] 80 Fed. Reg. at 67,854, n.27.

[66] *See* Duke Energy Progress, Inc., Mayo Steam Electric Generating Plant, Quarterly Progress Report (January – March 2015) ("Dry bottom ash handling system began construction on December 14, 2012. As of March 31, 2014, construction of this system was 100% complete.").

[67] *See* Final Notes from Site Visit at South Carolina Electric & Gas Company's Wateree Station on January 24, 2013, EPA-HQ-OW-2009-0819-1917, at 2.

[68] *See* Comment submitted by Elizabeth E. Aldridge, Hunton & Williams on behalf of Utility Water Act Group (UWAG), EPA-HQ-OW-2009-0819-4655, Attachment 11, at 9–10.

[69] *See* Comment submitted by Theresa Pugh, Director of Envtl. Servs., and Alex Hofmann, Energy and Envtl. Servs. Manager, American Public Power Association (APPA), EPA-HQ-OW-2009-0819-5140, at 37.

[70] *See* Duke Energy Progress, Inc., Mayo Stream Electric Generating Plant, Quarterly Progress Report (January–March 2015) ("The partial Zero Liquid Discharge system for FGD wastewater began construction on January 28, 2013. As of March 31, 2015, construction of this system was 100% complete."); *see also* Report of Randall Grachek, Attachment to SELC Comments (concluding that Dominion can install a system to achieve compliance with the Power Plant ELGs by late 2017 or early 2018 at the latest).

operation are appropriate, the plant should discuss such changes with the permitting authority and evaluate appropriate steps and a timeline for the changes, even prior to the permit renewal process."[71] Moreover, EPA's final effluent limits for FGD and coal ash transport water were also contained in the proposed rule issued June 7, 2013—on which proposal Dominion submitted comments. Thus, Dominion has been on notice of the likely need to upgrade wastewater treatment systems at its plants for more than three years and should already have developed or begun developing site-specific compliance plans.

Nevertheless, and despite acknowledging that it "has been evaluating potential compliance options since the rule's initial proposal in 2013," Dominion requested yet another year (until September 21, 2017) to continue its selection process.[72] The company offers no explanation as to the need for over four years of planning. Despite its assumption that this technology selection process will be concluded by September 2017, Dominion claims to need until February 2019 before even beginning the design process.[73] Again, the company gives no reason for this delay. VDEQ neither questions the requested compliance timeline nor offers any substantive analysis of Dominion's assertions. Nowhere does the Draft Permit or supporting record establish that a March 29, 2022 compliance date is "as soon as possible" as required by the rule. In essence, Dominion's proposed date for applicability of ELG limits is simply rubber stamped.

Given the importance of the new limits and the express directive from the EPA to implement these measures "as soon as possible," VDEQ must require a shorter time frame for implementation.

E. The Draft Permit Contains Inadequate Monitoring Requirements for PCBs.

The Draft Permit prohibits the discharge of polychlorinated biphenyl compounds ("PCBs"), but lacks the sampling and process necessary to ensure that PCBs are not discharged.[74] As written, the Draft Permit only requires sampling for PCBs at Outfall 301. The discharges from this outfall do not accurately represent discharges at other outfalls, especially given the fact that prior sampling was conducted using an EPA compliance method not designed to detect low-level PCBs. Therefore, VDEQ should require sampling for PCBs at all non-cooling water outfalls and at stormwater discharge points.

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[71] 80 Fed. Reg. at 67,882–83 (emphasis added).

[72] Permit Fact Sheet, Attachment 5.k.

[73] *Id.*

[74] Draft Permit at 24.

III. CONCLUSION

For the foregoing reasons, VDEQ should re-issue a new draft VPDES permit for Chesterfield correcting the deficiencies identified above as soon as possible, and notice it for public comment. We thank VDEQ for its attention to and consideration of these comments. Please do not hesitate to contact the undersigned if you would like to discuss them further.

Sincerely,

/s/ Lane A. Johnson

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Bryan, Joseph (DEQ)

From: Trieste Lockwood <trieste@vcnva.org>
Sent: Thursday, July 21, 2016 2:50 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Chesterfield Comments
Attachments: 7.21.16 Final Chesterfield Permit comments.pdf

Dear Mr. Bryan,

Please accept the attached comments on behalf of VCN and partners. Thank you in advance for your consideration. Best of luck with your work on this permit.

Sincerely,

Trieste

Trieste Lockwood
Policy and Campaigns Manager
Virginia Conservation Network
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Richmond, VA 23219
804-213-2395

VIRGINIA CONSERVATION NETWORK

July 21, 2016

Joseph Bryan
Department of Environmental Quality
Piedmont Regional Office
4949-A Cox Rd.
Glen Allen, VA 23060

RE: Comments on draft VPDES Permit No. VA0004146 for Dominion – Chesterfield Power Station

Dear Mr. Bryan,

Please accept these comments on behalf of the Virginia Conservation Network (VCN) and its network partners, the National Parks Conservation Association, Virginia League of Conservation Voters, Wetlands Watch, Environment Virginia, Virginia Eastern Shorekeeper, Chesapeake Climate Action Network, Moms Clean Air Force VA, the Virginia Chapter of the Sierra Club, and the American Canoe Association, regarding the reissuance of the Virginia Pollutant Discharge Elimination System Permit (VPDES) No. VA0004146 (Chesterfield Permit). We respectfully request that the Virginia Department of Environmental Quality (DEQ) revise the permit to address its flaws before Virginia Electric and Power Company (Dominion) is authorized to discharge coal ash wastewater into the James River from the Dominion Chesterfield Power Station (Chesterfield Power Station).

Thank you for accepting our comments regarding this permit. Please see our main points and permit revision requests below.

1) The permit must require more stringent pollutant treatment and eliminate the "mixing zone."

A) Pollution Treatment

The Clean Water Act (CWA) and the Virginia Antidegradation Policy (Antidegradation Policy) have put standards in place to protect water quality, and they are applicable to the Chesterfield Permit.[1] The CWA mandates that "such effluent limitations shall require the elimination of discharges of all pollutants if the Administrator finds . . . that such elimination is technologically and economically achievable."[2] The CWA does not require a "mixing zone." The DEQ may, and should, require better standards of treatment using the best technology available in the Chesterfield Permit prior to discharge.

[1] 33 U.S.C. § 1311; 9VAC25-260-30.
[2] 33 U.S.C. § 1311(b)(2)(A).

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According to federal regulations, these technology-based treatment standards are to be decided by the DEQ on a case-by-case basis.[3] Using its best professional judgment, the DEQ must impose technology-based effluent limitations as the minimum pollution limits in discharge permits. Therefore, we respectfully request that the DEQ's permit include more stringent concentration technology-based standards prior to discharge and at all times.

Though improvements are seen in the Chesterfield Permit compared to others in Virginia, it can be strengthened further. For example, the Chesterfield Permit allows for an arsenic monthly average discharge of 240 ug/L and 440 ug/L daily maximum during dewatering from outfall 101.[4] Virginia public water supply's arsenic standard is 10 ug/L to protect human health, and the standard to protect aquatic life is 150 ug/L. Even if the receiving body of water is not a public water source, the arsenic limit in this permit could be lowered to be no greater then 10 ug/L. We encourage the more stringent limits in this draft permit to remain low at all times. The DEQ should ensure that the final permit's concentration limits meet state public health standards or, at a minimum, meet the lowest standards agreed upon in similar dewatering permits.

B) Mixing Zone

As mentioned above, the wastewater can be treated prior to discharge. Water quality would not be preserved during dewatering in the proposed "mixing zone." A "mixing zone" is a defined by state law as a "limited area or volume of water where initial dilution of a discharge takes place and where numeric water quality criteria can be exceeded but designated uses in the water body on the whole are maintained and lethality is prevented."[5] The permit's allowable dilution levels and "mixing zone" threaten water quality pursuant to the Antidegradation Policy, and the DEQ is authorized to require full treatment of the water prior to discharge negating the need for a "mixing zone."

The James River is a Tier 1 waterway and the Antidegradation Policy is in place to ensure strong water quality protection, unless lowering "water quality is necessary to accommodate important economic or social development in the area."[6] Even if water quality is lowered, it may not be degraded to the point of impacting existing water uses. In this case, important economic or social development has not been demonstrated in the river's area in order to adequately justify the lowering of its water quality for a "mixing zone." Virginia's water quality standards state that a "mixing zone" should not "be used for, or considered as, a substitute for minimum treatment technology required by the Clean Water Act and other applicable state and federal laws."[7] Therefore it would be prudent for the DEQ's pollutant concentration limits, which are dependent on the dilution

[3] 40 CFR 125(c)(3).
[4] Virginia Electric Power Company, Dominion Chesterfield Power Station, Permit No. VA0004146 (hereinafter "Chesterfield Permit"), p. 3.
[5] 9VAC25-260-5.
[6] 9VAC25-260-30.
[7] 9VAC25-260-20(B)(7).

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limits, to be more stringent and not act as a "substitute" for available wastewater treatment.

2) The permit must include more stringent drawdown requirements, and abide by the new Effluent Limit Standards and Guidelines as soon as possible.

A) Drawdown

Enhanced treatment "triggers" are designed and intended to ensure water discharged during drawdown meets water quality standards at the point of discharge, and this permit should reflect enhanced treatment agreed to by the utility. The drawdown limits for the Bremo, Possum Point, and Chesapeake Power Station permits were set at six inches per day, while the Chesterfield Permit pond closure rate is set at two feet per day.[8] Drawdown that occurs too rapidly may harm the integrity of the coal ash impoundment and cause dam failure and pollution. Therefore, we request that the drawdown occur at a slower rate and be no greater than the drawdown at other coal ash sites in Virginia.

B) The New Effluent Limit Guidelines and Standards

The Effluent Limitations Guidelines and Standards for the Steam Electric Generating Industry (ELG Rule) will apply to the Chesterfield Power Station.[9] The ELG Rule will require best available technology to be applied to the flue gas desulfurization waste stream, and compliance can be met through a variety of methods.[10] Dominion proposes to comply with the ELG Rule in 2022.[11] Additional treatment technologies could be fully incorporated and applied sooner, and at a minimum, the technologies could begin to be implemented in years prior to 2022. We respectfully request that this rule's new wastewater limits are complied with as soon as possible at the Chesterfield Power Station, and not delayed for eight years. Dominion proposes semi-annual reporting on its progress towards compliance, and we urge this reporting to be required to take place as frequently as possible in order to keep DEQ thoroughly informed of Dominion's progress towards ELG Rule compliance.[12]

3) The permit must include more frequent heavy metal monitoring and toxicity testing.

A) Heavy Metal Monitoring

More frequent monitoring of heavy metals will ensure water quality protection. Monitoring could take place daily or three times a week, instead of monthly, for more of

[8] Chesterfield Permit, p. 26.
[9] 40 CFR 423.13.
[10] Fact Sheet Dominion Power Attachments (heareinafter "Fact Sheet Attachments"), p. 353.
[11] Fact Sheet Attachments, p. 353.
[12] Fact Sheet Attachments, p. 353.

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the metals. For example, the Clinch River Permit was revised to include greater frequency of monitoring for aluminum, barium, beryllium, boron, cobalt, molybdenum and vanadium.[13] Now these metals are going to be tested three times a week instead of one time a month, as these were the metals with numeric criteria and effluent levels that called for more monitoring in the Clinch River Permit. These same heavy metals in the Chesterfield Permit are listed as being monitored one time a month, and we respectfully request that these and any other appropriate heavy metals be monitored three times a week as well.[14]

B) Whole Effluent Toxicity Testing

The Whole Effluent Toxicity (WET) testing, which is different than the heavy metal testing, is essential to protecting the diverse aquatic and protected species. It would be prudent for the Chesterfield Permit to require more frequent testing and monitoring.[15] This permit could require WET testing 3 times a week, including a test on the first day of dewatering periods in order to check the toxicity levels before the majority of the water is discharged into the river.[16] Frequent reporting after toxicity testing of local aquatic species would help prevent excessive heavy metal levels from causing further damage to protected species, and such improvements have been made in other dewatering permits. For example, the Clinch River Permit has been modified to include more WET testing with "...monitoring frequency [changing from] from monthly to once during the first week of dewatering, once during the second week of dewatering, and monthly thereafter."[17] The Clinch River DEQ Memorandum states that the "modification [of WET testing] will allow for earlier assessment of potential toxicity of the discharge associated with the dewatering operation," and we encourage the DEQ to include similar changes in this permit as well.[18] The Chesterfield Fact Sheet with attachments states that there have been excessive levels of "mercury and arsenic in fish tissue" in the past, and this permit could preempt such problems by increasing WET testing frequency and reporting.[19]

4) The permit must be revised to ensure better safeguards are in place to monitor and protect aquatic species, such as the Atlantic sturgeon, pursuant to the Clean Water Act.

A) Protected Species

The Atlantic sturgeon fish populations are listed as endangered and threatened,

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[13] Memorandum on Reissuance of VPDES Permit No. VA0001015, Appalachian Power Company – Clinch River Plant, Russell County (hearinafter "Clinch River Memorandum"), p. 1 of Attachment A.
[14] Chesterfield Permit, p. 2-4.
[15] Chesterfield Permit, p. 31.
[16] *See also,* Fact Sheet Attachments, p. 891-931 (describing WET Data Review).
[17] Clinch River Memorandum, p. 2.
[18] Clinch River Memorandum, p. 10.
[19] Fact Sheet Attachments, p. 6.

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and are present in the James River.[20] The federally listed sturgeon species is critically and historically low in the Chesapeake Bay region due to habitat loss, overfishing, threats to species recovery, and other factors.[21] The National Marine Fisheries Service has proposed a draft rule designating critical habitats for this species, which demonstrates its importance and highlights the need to protect this waterway in order to conserve the species.[22] Though it was listed as a federally endangered species in 2012, recent published research shows that there are small populations returning to spawn in the James River. These spawns help negate the risk of extinction. The presence of this federally protected species calls for higher scrutiny in this permit. The DEQ should ensure that the best available technology is used for each level of water treatment in order to protect aquatic life. Additionally, a habitat conservation plan should be required and addressed in the permit to alleviate concerns about threats to this species.

B) Clean Water Act Section 316(a) and Section 316(b)

The Clean Water Act Section 316(a) (Section 316(a)) variance should be reevaluated to ensure that the thermal discharge does not cause harm to the aquatic species surrounding the Chesterfield Power Station.[23] Section 316(a) allows for more stringent thermal discharge limitations to protect aquatic life. Studies indicate that high temperatures could negatively impact the habitat of aquatic species, including the Atlantic sturgeon. This power station uses a once through cooling system to absorb heat from plant condensers. The system's old technology uses millions of gallons of river water each day resulting in hot water discharges, and it would be prudent to require a reevaluation of Section 316(a) protections. A 2004 thermal variance allowed the discharge of excessively hot water, and a study was used to show that there was not harm to the river at that time. It is noteworthy that the protected Atlantic sturgeon species was not adequately and thoroughly considered at the time of the study. A new evaluation and reconsideration of the variance would be helpful to ensure that the DEQ has the proper information to evaluate potential harm to the species.[24]

The Clean Water Act Section 316(b) (Section 316(b)) applies here and is implemented through VPDES permits, such as the Chesterfield Permit.[25] Section 316(b) regulates the cooling water intake systems in order to prevent adverse impacts. The DEQ determined that the Chesterfield facility is "subject to the §316(b) requirements because it is a point source that uses or proposes to use one or more cooling water intake structures

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[20] *See,* Fact Sheet Attachments, p. 604, p. 499; *See also,* National Oceanic and Atmospheric Administration, *Atlantic Sturgeon, available at:* http://www.fisheries.noaa.gov/pr/species/fish/atlantic-sturgeon.html.

[21] NOAA Fisheries Service, *Atlantic Sturgeon Chesapeake Bay Distinct Population Segment: Endangered, available at:* http://www.nmfs.noaa.gov/pr/pdfs/species/atlanticsturgeon_chesapeakebay_dps.pdf.

[22] *Proposed Rule,* 50 CFR 226, Department of Commerce, National Oceanic and Atmospheric Administration (June 3, 2016).

[23] 33 U.S.C. § 1326(a); Fact Sheet Attachments, p. 379.

[24] Fact Sheet Attachments, p. 398; *See also,* p. 388-89, p. 420 (describing past cases of fish kills in Farrar Gut).

[25] 33 U.S.C. § 1326(b).

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that withdraws waters of the U.S. for cooling purposes."[26] In regards to water intake systems, impingement and entrainment characteristics should be evaluated under Section 316(b) and a related permit application should be considered.[27] This facility draws millions of gallons of water into the plant each day, posing serious risks to fish and aquatic life that may be impinged or killed during intake. Aside from studying the issue, we respectfully request that technologies are implemented to minimize aquatic organism impingement. A reevaluation of Section 316(b) implications could prevent potentially destructive cooling water intake that could negatively affect listed species and critical habitats. Regarding the monitoring requirements, it would be prudent to require Dominion to both conduct a "visual inspection" and "employ remote monitoring devices during the period any cooling water intake structure is in operation" instead of choosing one of monitoring techniques.[28] The state permit regulations require federal law compliance, and more safeguards would prevent any, even accidental, takings of federally protected species and ensure compliance with Section 316(b). The DEQ should also require strong and frequent monitoring of measures to reduce any incidental takings of protected species and to protect the James River's aquatic habitat.

5) Conclusion

In sum, the Chesterfield Permit must be revised to safeguard water quality and aquatic habitats in the James River. We respectfully request that more stringent pollutant treatment be included, and that the wastewater be fully treated prior to discharge in order to negate a need for the "mixing zone." More stringent drawdown requirements would allow for conformance with similar permits and protect the integrity of the coal ash impoundments. We hope to see compliance with the new Effluent Limit Guidelines and Standards sooner then 2022. We note that more frequent heavy metal monitoring and toxicity testing is obtainable, and that such permit revisions would be prudent to ensure that water quality is protected during operations. More frequent monitoring and testing would also help protect listed aquatic species, like the Atlantic sturgeon, and critical habitats. Additional safeguards would ensure species are protected and water quality is maintained in the James River.

Thank you for your thoughtful consideration of these comments. Please do not hesitate to contact us with any questions or feedback.

Sincerely,

Trieste Lockwood, Esq., *on behalf of the following organizations*
Virginia Conservation Network
Trieste@vcnva.org

[26] Fact Sheet Attachments, p. 26.
[27] Chesterfield Permit, p. 34.
[28] Chesterfield Permit, p. 35.

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Bryan, Joseph (DEQ)

From: Peggy Sanner <PSanner@cbf.org>
Sent: Thursday, July 21, 2016 12:01 PM
To: Chesterfield Power Station Water Permit (DEQ); joseph.bryan@virginia.deq.gov; Winter, Kyle (DEQ)
Cc: Rebecca LePrell; Chris Moore; Joseph Wood
Subject: Comments of CBF on Chesterfield Power Station VPDES Permit (reissuance)
Attachments: Chesterfield VPDES cmmts 7-21-16 fnl.pdf

Dear Mr. Bryan and Mr. Winter,

Kindly find attached the comments of Chesapeake Bay Foundation concerning the draft VPDES permit reissuance for the Chesterfield Power Station. Please let us know of any comments. I would also appreciate confirmation that you have received these comments.

Best regards,
Peggy

Margaret L. (Peggy) Sanner
Virginia Assistant Director and Senior Attorney
Chesapeake Bay Foundation
1108 E. Main Street, Suite 1600
Richmond, VA 23219
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CHESAPEAKE BAY FOUNDATION
Saving a National Treasure

July 21, 2016

Joseph Bryan
DEQ – Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
ChesterfieldPowerStationWaterPermit@deq.virginia.gov

Re: Virginia Electric and Power Company D/B/A Dominion Virginia Power Chesterfield Power Station VPDES Permit No. VA0004146 (Reissuance)

Dear Mr. Bryan:

On behalf of the Chesapeake Bay Foundation (CBF), I hereby submit the following comments regarding the draft Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0004146 (reissuance) for Virginia Electric and Power Company d/b/a Dominion Virginia Power's ("Dominion") Chesterfield Power Station (CPS).

CBF is the largest regional nonprofit organization dedicated solely to saving the Chesapeake Bay and its tributaries, including the James River. With over 200,000 members, including approximately 70,000 in Virginia, CBF has offices in Richmond and Virginia Beach; conducts restoration activities on the James River, at CBF's oyster restoration center in Gloucester and other locations throughout the watershed; and operates award winning on-the-water education programs for students, teachers and administrators from its island centers in the Chesapeake Bay and through boat-centered programs on the James and other tributary waterways.

Dominion's plans to close the CPS coal ash ponds following the promulgation of the Electric Utilities Final Coal Combustion Residuals Rule, issued April 2015 ("CCR Rule")[1] have wide implications for the water quality and habitat of the James River and the Chesapeake Bay, both ravaged by, and now recovering from, years of industrial and other pollution. Accordingly, CBF commented to the Department of Environmental Quality (DEQ) on the draft Chesterfield Power Station Fossil Fuel Combustion Products Management Landfill Permit (Solid Waste Permit No. 609) and to the Chesterfield County Planning Commission and Board of Supervisors regarding modification of Dominion's Conditional Use Permit for the CPS. We respectfully offer the present comments on the draft VPDES permit to help protect the James and the Bay from pollution both from ongoing generating operations and from the intended closure of the two coal ash impoundments on the CPS site.

[1] Disposal of Coal Combustion Residuals from Electric Utilities, 40 C.F.R. § 257,61 (2015).

We are grateful to have had the opportunity to discuss many of the closure issues with representatives of Dominion, and for the tour of the CPS facility provided by Dominion. We appreciate the significant efforts of Dominion and DEQ to protect these waterways.

BACKGROUND

This reissued Permit will regulate ongoing discharges to surface waters from the coal- and gas-fired generation of electricity at CPS. The Permit will also address new discharges arising from the anticipated closure of two coal ash ponds and other operational modifications occasioned by the recent CCR Rule.

The CPS operation currently makes use of a number of internal and external outfalls that discharge to the James River, Farrar Gut and Aiken Swamp; planned pond closure activities are expected to change these flow patterns in some respects. For example, the Lower Ash Pond (LAP), which currently receives wet sluiced ash and wastewater from various sources at the facility, now discharges the freestanding wastewater to the James through Outfall 004; the dewatered wet ash is then transported to the Upper Ash Pond (UAP) for treatment. To facilitate pond closure, CPS will construct a Low Volume Wastewater Treatment System (LVWWTS) to treat the wastewater that is currently routed to the LAP and then discharge it first to internal Outfall 301 and subsequently through a diffuser to the thermal discharge channel for Outfall 003. Once the operational conversion is complete and the LVWWTS is receiving and treating wastewater, the LAP and UAP will be closed.

During pond drawdown and dewatering, approximately 280 million gallons of wastewater will be pumped from the LAP over a three-month period and approximately 3.5 million gallons of wastewater from the UAP will be discharged[2] over a one-month period through internal Outfall 101 and then to the James through Outfalls 001 or 002. This enormous volume of wastewater will have the "highest concentrations of pollutants as it has the closest contacts with the CCRs"[3].

COMMENTS

CBF's comments address certain of the CPS discharges -- pre-drawdown and planned in connection with the LAP and UAP closures -- to be regulated by the Permit.

I. Ensuring Nutrient and Sediment Discharges Conform to Chesapeake Bay TMDL and Virginia Watershed Implementation Plan Requirements

In 2010, the Environmental Protection Agency (EPA) issued the *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (Bay TMDL)[4]; this document, together with Virginia's Phase I Watershed Implementation Plan (Phase I WIP) and the similar plans prepared by other watershed jurisdictions, comprise the blueprint ("Blueprint") for restoring the Bay and its tributary rivers

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[2] *See* VPDES Permit No. VA0004146 Fact Sheet at 5.
[3] *Id.* at 15.
[4] See https://www.epa.gov/chesapeake-bay-tmdl/chesapeake-bay-tmdl-document.

by 2025. The Blueprint states specific nutrient and sediment limits for all major industrial operations that discharge to the waterways flowing to the Bay.

Nutrients. In Virginia, Blueprint-compliant nutrient limits are made binding on individual dischargers – including CPS – through incorporation into the VPDES Watershed General Permit (WGP) for Nutrients and the Water Quality Management Planning Regulation.[5] The nutrient limits assigned to the CPS by the WGP are fully incorporated into the draft (individual) Permit and govern all discharges to the James River, Farrar Gut and Aiken Swamp. For example, the nutrient limits for the facility set forth in the WGP and the Registration Statement govern pre-drawdown discharges from CPS's Outfall 004 (ash sluice water, bottom ash and stormwater landing on the LAP) and Outfall 005 (stormwater from the UAP). Those Blueprint-compliant limits will also govern closure-related discharges. Thus, during closure, UAP and LAP effluent will be discharged through outfall 101 (internal) and then to external Outfall 001 or 002, which are expressly subject to the nutrient limits enforced by the Watershed General Permit and Registration Statement.[6] Similarly, the LVWWTS that will receive and treat wastewater after closure of the LAP and the UAP will be subject to the nutrient limits of the WGP.

Sediment. The Blueprint contemplates that existing Virginia point sources will conform to federal regulations prescribing technology-based (Best Practicable Control Technology, or BPT) for sediment.[7] These regulations prescribe daily TSS limits of 100 mg/L (30 mg/L monthly average) for low volume wastes,[8] fly ash and bottom ash transport water, and metal cleaning wastes. By contrast, for coal pile runoff, the daily TSS limit is 50 mg/L (30 mg/L monthly average). For waste streams comprised of different sources, applicable limits are calculated using the limit for each stream times the percentage of that waste in the combined stream. These rules apply except where there are "fundamentally different factors" at play than those contemplated by the TSS technology limits prescribed in the rule. [9]

The Permit prescribes these limits for pre-drawdown activities. Thus, most CPS outfalls are generally subject to the standard 100 mg/L (30 mg/L) TSS limits, while the Permit also prescribes a *calculated* daily TSS limit of 88 mg/L (30 mg/L) for Outfall 004 that takes into account the different regulatory limits applicable to each waste stream in the LAP wastewater that discharges at this Outfall (low volume waste streams including metal cleaning wastewater, treated FGD wastewater, and wastewater from LAP toe drains). [10] The Fact Sheet indicates that the permittee has achieved this somewhat more stringent TSS limit.[11]

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[5] Outfalls subject to TMDL and covered by WGP: 004 (LAP to Farrar Gut); 005 (UAP to Farrar Gut); Outfall 101 (during dewatering UAP, LAP); 301 (LVWWTS new internal).
[6] VPDES Permit No. VA0004146 at 4.
[7] *See* 40 C.F.R. 423.12.
[8] Citing 40 C.F.R § 423.11(b). Defines "low volume waste sources" to mean, taken collectively as if from one source, "wastewater from all sources except those for which specific limitations are otherwise established in this part. Low volume wastes sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastes are not included. . ."
[9] *See* 40 C.F.R. 423.12.
[10] Permit at 14.
[11] Fact Sheet at 19.

It is not clear, however, that the TSS limits applicable during drawdown activities are consistent with the federal rule's calculation requirements. As noted above, during closure, wastewater from the LAP (a combined wastewater stream) and UAP will both be discharged through internal Outfall 101 (and then to external Outfalls 001 or 002); the discharge should, therefore be considered a combined waste stream requiring a calculated TSS limit. Yet, the Permit simply prescribes the standard 100 mg/L (30 mg/L) TSS limit. [12] Use of this standard TSS limit appears inconsistent with the federal rule.

Moreover, the anticipated discharge from Outfall 101 during closure activities should be deemed "fundamentally different factors" than those contemplated in the rule. Thus, the very high volume of wastewater (more than 280 million gallons) anticipated to be discharged from Outfall 101 indicates that a lower TSS concentration limit is appropriate to ensure protection for the receiving waters.[13]

Recommendation #1:

The draft Permit should be modified to reduce the TSS maximum daily limit for discharges from Outfall 101 during closure activities. The new lower TSS limits should reflect the constituent wastewater from the LAP and UAP, and also ensure protection of the receiving waters.

Phase III Watershed Implementation Plan. In 2018, EPA and the Bay states are expected to update the Blueprint documents and strategies, taking into account progress and remaining challenges toward the 2025 restoration goal. Accordingly, it is appropriate that the Permit include Special Condition I.C.2 ("Nutrient Reopener") which expressly allows for the Permit to be reopened for new limitations, monitoring requirements or other changes that may be necessitated by State Water Control Board (Board) action on new nutrient standards, including for the Chesapeake Bay. The draft Permit does not include any Special Condition providing for reopening to address changes in sediment discharge limits.

Recommendation #2:

The draft Permit should be amended to add a new Special Condition ("Sediment Reopener") to address any changes to sediment limits required by Blueprint modifications after 2018.[14]

II. Ensuring Effective Stormwater Management During Closure Activities

While industrial stormwater from CPS to surrounding waterways is generally regulated under the VPDES Industrial Stormwater General Permit,[15] rather than this individual Permit, this Permit will directly regulate discharges occasioned by the massive operational changes related to ash pond closures: ash movement for off-site disposal, ash loading and unloading, ash storage prior to offsite transport, and vehicle tracking. It is appropriate, therefore, that this Permit include Special Condition I.C.23, "Ash Pond Closure Stormwater Management," which requires maintenance of a Stormwater

[12] Permit at 9.
[13] Thus, closure activities should constitute "fundamentally different factors" than those contemplated by the TSS technology limits prescribed by 40 C.F.R. 423.12(a).
[14] Documentation of nutrient/ammonia limitations – Attachment 5a through 5f.[14]
[15] Fact Sheet, attachment 3 (Form 2C – NPDES).

Pollution Prevention Plan (SWPPP) that mandates stormwater BMPs. Given the scale of the operational changes, we do not think the Permit's required inspection schedule for these BMPs is adequate.

Recommendation #3:

The Permit should be modified at Special Condition to I.C.23 to require the permittee to conduct inspections of the structural efficiency and operational integrity of each BMP *every three days* during closure activities.[16]

III. Required Pre-Discharge Treatment of LAP & UAP Wastewater

This draft Permit states effluent limitations for more than 20 pollutants expected to be found in the wastewater from LAP and UAP decanting and dewatering pre-treatment prior to discharge to meet those limits, enhanced pre-discharge treatment of treated wastewater that exceeds stated trigger concentrations, and inline process sampling collected every four hours[17] during discharge to determine pollutant concentrations.[18]

The draft Permit does not specify the treatment process that must be used for the effluent from the LAP and the UAP. [19] Instead, CPS must develop, and submit to DEQ for approval, a Concept Engineering Report (CER) detailing the planned wastewater treatment that will achieve design treatment and effluent concentrations. [20] The Permit also requires submission to DEQ of a monthly summary report of the decanting/dewatering discharge no later than the 10th day of the month after monitoring takes place, authorizes DEQ to include technology-based annual effluent limits based on the information in the CER, and requires Dominion, *when requested*, to furnish DEQ information showing the effects of discharging UAP and LAP wastewater on the quality of state waters.[21] Noncompliance with the approved CER will be a violation of the Permit.[22]

Recommendations #4-8:

The draft Permit should be modified to require public comment on the submitted CER before it is approved by DEQ. This CER will effectively be incorporated into the Permit and must therefore be subject to the public participation standards applicable to all NPDES permits which will serve, among other things, to ensure that the treatment being proposed will meet the technology requirement of the Clean Water Act.

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[16] Permit at 33 (C.23.)
[17] Permit at 32.
[18] Permit I.C.21 ("Treatment Requirements for the Lower Ash Pond and the Upper Ash Pond Closure Discharge") at 32.
[19] *See* Permit Special Condition I.C.8.
[20] Fact Sheet at 4-5 ("All discharge flows during closure will be treated prior to closure. A concept engineering report for the treatment process must be submitted and approved prior to construction").
[21] *See* Fact Sheet at 25 (citing to Va. Code § 62.1-44.21 for authority).
[22] Permit at 32.

Similarly, the draft Permit should be modified to require public comment on any proposal to modify, revoke or reissue the Permit by adding annual concentration limits.[23]

The draft Permit should be modified to require CPS to submit the inline decanting/dewatering sampling reports to DEQ on a continuous or real-time basis, without waiting for a request. This step will ensure DEQ can be proactive in addressing any arising problems that may threaten state waters – a critical ability, given the short term nature of the pond discharge process and the potentially grave impacts on receiving waterways from violations, accidents or unforeseen problems.

The draft Permit should also be modified to require CPS to provide for public access to the results of the inline sampling processes within a timeframe as close to real time as possible. Early, regular and accessible information on these discharges is imperative to maintain public trust.

IV. Investigating & Mitigating Any Surface Water Pollution from LAP and UAP Leachate.

The draft Permit requires continued groundwater sampling pursuant to an existing groundwater monitoring plan dated September 2001, modified in November 2001, which has been incorporated into the Permit,[24] and the portions of the monitoring plan that address the UAP and the LAP will remain in effect until they are superseded by a Solid Waste permit.[25] Yet, new information suggests that these provisions may not be sufficient to protect Virginia's ground and surface waters from pollution traceable to the coal ash ponds.

In a recently published study, [26] Duke University scientists examined the geochemistry of ground and surface waters from different coal ash storage sites, including CPS, in 5 states.[27] Previous studies had found that coal ash leachates have distinctive boron and strontium isotope ratios. This study relied on isotopic signatures to delineate CCR impacts in the environment, sampling sites with no earlier known contamination from accidental releases. At CPS and other sites, the study found high boron and strontium concentrations, along with distinctly low CCR-typical isotopes of boron values, that the researchers concluded are evidence for the discharge of coal ash pond water to local surface water.[28] The study also found similar evidence at the site of closed coal ash ponds, suggesting that the process of leaching to ground and then to surface water may not stop upon pond closure.

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[23] *See* Permit Special Condition I.C.20 (requiring DEQ approval of submitted CER, and authorizing DEQ to initiate technology-based annual concentration limits).
[24] Permit at 23.
[25] Permit Special Condition 1.C.7 "Groundwater Monitoring." 62.1-44.21. Relies on existing schedule until new RCRA permit supersedes the monitoring plan. Permit Attachment 8.
[26] Jennifer S. Harkness, Barry Sulkin & Avner Vengosh, Evidence for Coal Ash Ponds Leaking in the Southeastern United States, 50 Environ. Sci. Technol., 6,583,92 (2016).
[27] *See Id.*
[28] *Id.* at E.

This study is preliminary. Yet its results clearly suggest that leachate from CPR's coal ash ponds may be traveling to surface waters surrounding the CPS facility. In such case, the CPS coal ash ponds – existing or closed – may constitute a point source of pollutants to the James River and/or local waterways.[29] Such a discharge, unless duly permitted by the Board, would be illegal. Given these circumstances, the Permit may not be issued in its present form, consistent with the responsibilities of DEQ and the Board.

Recommendation #9:

The draft Permit should be modified to require CPS to investigate the possible discharge to surface waters of pollutants from the LAP and/or UAP using the methodology described in the Duke study; and, if such discharges are detected, to develop and submit to DEQ for approval a treatment process to prevent such discharge from its coal ash sources; and to implement the plan within the Permit period pursuant to an appropriate compliance schedule. Opportunities for public review of the investigation process and for public comment on the proposed treatment plan should be required.

V. Ensuring CPS Operations Do Not Harm Wildlife and Habitat

A. Proposed Thermal Variance under CWA 316(a)

The draft Permit proposes to carry forward the thermal variance first granted to CPS in 2004, with the explanation that "station operations have not materially changed" since 2004 and that there is "no evidence that the stream characteristics have materially changed" since that time.[30] The variance would allow CPS to continue discharging heated cooling water into Farrar Gut. New information concerning Atlantic Sturgeon in the James River strongly indicates, however, that the requested variance should be denied until CPS updates the study materials it submitted to DEQ in 2004 with the goal of taking into account the 2011 listing of Atlantic Sturgeon as an endangered species and the pending administrative rulemaking to designate critical habitat as it pertains to the Chesapeake Bay distinct population segment.

CWA Section 316(a) authorizes DEQ to impose less stringent effluent limitations to control thermal discharges if the permittee demonstrates that the otherwise applicable effluent limit is more stringent than necessary "to assure the protection and propagation of a balanced, indigenous population [BIP] of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made."[31] The burden is on the permittee to show that variance will assure protection of the BIP, considering the "cumulative impact of the thermal discharge together with all other significant impacts on the species affected."[32] It does not appear that CPS has met its burden.

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[29] *See Sierra Club v. Dominion Virginia Power*, No. 2:2015cv00112 (E.D. VA. 2015). In this case, the federal court is directly considering the question whether coal ash ponds are point sources of pollution to surface waters that must be regulated through Clean Water Act permits.
[30] Fact Sheet, Attachment 7.
[31] 40 C.F.R. §§ 125.72- 125.73.
[32] 40 C.F.R § 125.73(a).

On June 3, 2016, the National Oceanic and Atmospheric Administration (NOAA) published for public comment a proposed rule regarding Atlantic Sturgeon, "Endangered and Threatened Species; [33] Designation of Critical Habitat for the Gulf of Maine, New York Bight, and Chesapeake Bay Distinct Population Segments of Atlantic Sturgeon."[34] The specific areas proposed for designation include approximately 453 miles of aquatic habitat for the Chesapeake Bay Atlantic Sturgeon population segment in the Bay region, including the James River. Critical habitat includes the geographic areas with the physical or biological features essential to the species' conservation of the species. Special management considerations or protections, including in NPDES permits, may be required.[35]

Recommendation #10:

The draft Permit should be modified to require CPS to update its prior submissions in support of the thermal variance to take into account the current state of science on potential impacts to Atlantic Sturgeon from anticipated thermal discharges.

B. Cooling Water Intake Under CWA 316(b)

The draft Permit includes an extended schedule for CPS to submit information demonstrating its compliance with new federal requirements to minimize impingement and entrainment of aquatic organisms in connection with its intake of cooling water.

On August 15, 2014, EPA signed the final regulatory revisions under CWA 316(b) which require facilities, like CPS, with water intake structures designed to withdraw 2 MGD to minimize impingement and entrainment mortality and adverse impacts to aquatic organisms by implementing Best Technology Available (BTA). For permits to be issued before July 15, 2018, the permittee must submit documentation demonstrating compliance with the rule's BTA options.[36] CPS requested, and the draft Permit would grant, an extension until 270 days before the end of the Permit term, within which to supply documentation showing that it has met the BTA requirements. The extension of time will allow CPS to conduct a two-year Entrainment Study, a Comprehensive Technology and Cost Evaluation Study, a Benefits Valuation Study and a Non-Water Quality and Other Impacts Study. Until that time, the Permit requires, among other things, interim BTA practices (curtain wall, traveling screens, spray wash systems and debris return[37]), preventative measures to be identified in the Operations & Maintenance Manual, monitoring to be conducted "no less than weekly" during cooling water intake, and annual reports to DEQ concerning the effectiveness/efficiency of the facility's control measures as they affect

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[33] 77 FR 5880, February 6, 2012. In June 2011, NOAA published its final rule listing several distinct population segments of the Atlantic Sturgeon, including the Chesapeake Bay DPS, as endangered species under the Endangered Species Act, but deferred, pending ongoing research, the identification of critical habitat for each DPS.
[34] https://www.federalregister.gov/articles/2016/06/03/2016-12743/endangered-and-threatened-species-designation-of-critical-habitat-for-the-gulf-of-maine-new-york#h-11
[35] 16 U.S.C. § 1532(5)(A).
[36] See 40 C.F.R § 125.94.
[37] Permit at 34.

federally-listed threatened or endangered species, designated critical habitat, and fragile species or shellfish.

Recommendation #11:

In view of the listing of Atlantic Sturgeon, the pending regulatory process regarding critical habitat, and the extension of time proposed to be granted to CPS before it must comply with the revised BTA requirements of the federal rule, the draft Permit should be modified to require CPS (a) to undertake monitoring no less than every three days during operations of the cooling water intake (rather than weekly); and (b) to include in its annual report to DEQ on federally listed or endangered species a description of all steps taken in the reporting period to reduce the number of organisms taken by impingement, entrainment or other method.

VI. Ensuring Adequate Protection from Toxic Discharges

Virginia's work on Bay and watershed restoration has long featured a commitment to reducing or eliminating the dangerous and toxic chemicals that foul our waterways. Thus, a prominent goal in the *Chesapeake 2000* agreement was to achieve a Chesapeake Bay "free of toxics by reducing or eliminating the input of chemical contaminants from all controllable sources to levels that result in no toxic or bioaccumulative impact on the living resources that inhabit the Bay or on human health"[38]-- a goal that was to be achieved through striving for "zero release of chemical contaminants from point sources," with "[p[]particular emphasis . . . on achieving, by 2010, elimination of mixing zones for persistent or bioaccumulative toxics." The 2014 Chesapeake Watershed Agreement renewed this commitment with its goal to "ensure that the Bay and its rivers are free of effects of toxic contaminants on living resources and human health.[39]

These commitments underscore our concern that the Permit's proposed effluent limits on metals and other metals in the pond effluent may be insufficiently protective. A notable example is arsenic, with proposed limits of 240 mg/L monthly average and 440 mg/L daily maximum,[40] compared with freshwater water quality standards (aquatic life) of 340 mg/L (acute) and 150 (chronic).

We are also concerned that the Permit's requirements for testing the drawdown effluent for exceedances of limits on potentially toxic chemicals may be insufficient. With UAP drawdown expected to be complete within one month (3 months for LAP drawdown),[41] the draft Permit's requirement of only **monthly** Whole Effluent Toxicity (WET) (Acute and Chronic) testing at Outfall 101 appears strikingly inadequate,[42] rendering meaningless the supposed ability of DEQ to confirm the safety of the discharge and halting it if warranted for safety concerns, through permit modification or revocation/reissuance.[43]

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[38] http://www.chesapeakebay.net/channel_files/19193/chesapeake_2000.pdf
[39] http://www.chesapeakebay.net/chesapeakebaywatershedagreement/page
[40] *See* Permit, at 2-4 (limits for Outfall 101, during drawdown).
[41] Fact Sheet, at 5.
[42] *See* Permit I.C.17.b.(6) ("Frequency of Testing. Monthly testing is required as indicated in Part I.A.2 of this permit, beginning upon commencement of closure activities as defined in Part I.C.24.")
[43] See Permit, I.C.17.b (5).

Recommendation #12

The draft Permit's effluent limits for drawdown effluent should be reconsidered and lowered to provide adequate protection of the receiving waterways; and the Permit should also be modified (a) to require WET testing the day before drawdown commences; (b) to require WET testing no less than once per week throughout the drawdown period for the LAP and the UAP; and (c) to ensure that the results of the WET testing are made publicly available as soon as practicable after the test results are completed.

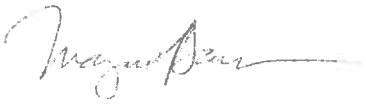
VII. **Other Comments**

Except to the extent inconsistent with the foregoing comments, we incorporate by reference the comments submitted by the Southern Environmental Law Center and the James River Association.

CONCLUSION

We are very appreciative of the opportunity to review, and provide our comments on, the draft VPDES Permit No. VA0004146 to be reissued for the Chesterfield Power Station. We would be pleased to answer any questions you may have.

Sincerely,



Margaret L. (Peggy) Sanner
Virginia Assistant Director & Senior Attorney

cc: Rebecca LePrell – CBF VA Executive Director
Chris Moore – CBF VA Senior Scientist
Joseph Wood – CBF VA Staff Scientist

Bryan, Joseph (DEQ)

From: Chesapeake Energy Center Waste Permit (DEQ)
Sent: Friday, July 15, 2016 5:05 PM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Bryan, Joseph (DEQ); Woodruff, Melinda (DEQ)
Subject: FW: Public Comment on Chesterfield Draft Permit

FYI – Joseph. I am forwarding this comment regarding Chesterfield Power Station to the appropriate mailbox.

Rachel B. Patton, P.G.
Groundwater Remediation Specialist
Department of Environmental Quality, Tidewater Regional Office
5636 Southern Blvd.
Virginia Beach, Virginia 23462
(757) 518-2145
Rachel.Patton@deq.virginia.gov
NEW - Please direct all electronic submittals and official correspondence to the TRO Land Protection mailbox at TRO.LandProtection@deq.virginia.gov. However, you may continue to contact me directly for specific questions.

From: N. Anderson Ellis [mailto:nicoleandersonellis@gmail.com]
Sent: Friday, July 15, 2016 1:47 PM
To: Chesapeake Energy Center Waste Permit (DEQ); Chesapeake Energy Center Water Permit (DEQ)
Subject: Public Comment on Chesterfield Draft Permit

7/6/2016

To: Joseph Bryan, Virginia Department of Environmental Quality

From: Nicole Anderson Ellis, Vice-Chair Henricopolis Soil & Water Conservation District

Re: Review of draft wastewater permit for Dominion's Chesterfield Power Station

Thank you for this opportunity to provide feedback this draft of a wastewater permit for Dominion's Chesterfield Power Station.

My name is Nicole Anderson Ellis and I serve as Vice-Chair on the Henricopolis Soil & Water Conservation District Board. While an independent government body, we share boundaries with Henrico County. That

means that the proposed dewatering of the Chesterfield Power Station would impact the James River where it borders our southern-most riverfront. Over the last year we have been working with you on the ways to best address the EPA's requirements regarding coal ash storage while safe-guarding Virginia's natural resources for future generations. Toward this end, we request the following revisions to this draft permit:

- As written, the permit would allow this facility to discharge arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc. Virginia's laws allow industrial facilities – factories and power stations, among them – to release heavy metals into our waterways, but the levels permitted here exceed those known to harm aquatic wildlife.

  We ask that the water entering the James be held to a higher standard, and that the revised permit require Dominion to pre-treat water to bring the levels of these heavy metals below the known threshold for biological risk to fish and other aquatic wildlife.

- Likewise, the current draft would allow Dominion to release into the James River water that is at temperatures high enough to harm fish and other aquatic life. We ask that the next draft require further cooling.

  Indeed, we ask that these standards of treatment be applied to all water releases from this facility, including leachate from the coal ash landfill.

- I'd also like to suggest a revision speaking not as a member of the Soil & Water Conservation board, but as a citizen of the region, an active paddler, and a mother. The current draft of this permit provides for 30 years of care. But the heavy metals we're discussing will be as dangerous in 30 years as they are today. I like to think that in 30 years my daughter, who is now 11, will be taking her own children paddling, and swimming, and fishing on the James and I want to make sure that the decisions we're making here today are considering their health as well. Please revise this draft to include a long-view plan for ongoing site monitoring and care.

- Finally, it should be also be noted that if this permit were to suddenly require Dominion to relocate their toxic waste piles away from the tidal shores of our beloved James River, we'd fully support that revision as well.

Thank you for your time

--
Nicole Anderson Ellis
804-512-9973

Please do not forward this email without permission.

Bryan, Joseph (DEQ)

From: Sharon Ponton <ponton913@msn.com>
Sent: Thursday, July 21, 2016 11:16 AM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Comments
Attachments: Chesterfield De-watering Comments.docx

Please accept the attached comments regarding the Chesterfield Power Station Water Permit Application

Sincerely,
Sharon Ponton
Virginia Organizer
Blue Ridge Environmental Defense League
(434) 420-1874
Ponton913@msn.com

Blue Ridge Environmental Defense League

8260 Thomas Nelson Hwy., Lovingston, VA 22949 (434) 420-1874 ponton913@msn.com

Comments regarding permit VA0004146
Dominion Chesterfield CCR Wastewater Permit

The Blue Ridge Environmental Defense League, representing its chapters and members in Virginia, make the following comments regarding Permit #VA0004146 for the Dominion Chesterfield Plant:

1) The Virginia DEQ must take into consideration studies such as the one recently published by Dr. Avner VenGosh of Duke University when writing permits for the Chesterfield Power Plant.
2) The DEQ must test for radioactive isotopes and for hexavalent chromium.
3) Testing for heavy metal contamination of river sediment should be included as a part of the testing program for this permit.
4) If there are municipal water intake systems downstream from the outfall areas, has the risk of trihalomethanes in drinking water been considered?
5) Third party monitoring or at the very least third party verification of all test results to ensure protection of the river and confidence that all testing is being completed in a manner where accurate, non-manipulated results are provided to DEQ and shared with the public should be required as a part of this permit.
6) Sustenance fisherman downstream should be warned if this permit is approved. They should also be encouraged to report any changes or deformities they might find in fish caught to the DEQ.

The Virginia Department of Environmental Quality must not allow the James River to become Dominion's toxic coal ash wastewater sewer. This is the second permit, the first being Bremo Power Station, which allows this toxic brew to be dumped into the James.

Please respond in writing.

Respectfully,

Sharon Ponton
Virginia Organizer
Blue Ridge Environmental Defense League

Sent from Mail for Windows 10

Bryan, Joseph (DEQ)

From: Hon. John P. Flannery <jonflan@aol.com>
Sent: Tuesday, July 05, 2016 3:52 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: On the handling of coal ash residue at Chesterfield Power Station. John P. Flannery

Dear Mr. Ryan,

I understand that there will be an information meeting and hearing tomorrow evening by the DEQ, on the coal residue from the Chesterfield Power Station, and I would like to make some comments. I may have written material. If I do, what would be an adequate number of copies to circulate. Thank you for your time and kind attention to this matter. See you there.

Warmest regards,

John

John P. Flannery II, Esq.
CAMPBELL FLANNERY PC
jonflan@aol.com
www.lawyerflannery.com
Video: http://youtu.be/T2imXMl9xzI
www.johnpflannery.com
cell: 202-365-5060
office: 703-771-8344

Bryan, Joseph (DEQ)

From: Mable Kinzie <mable.kinzie@gmail.com>
Sent: Tuesday, July 05, 2016 2:24 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Feedback on the draft wastewater permit for Dominion VA Power's Chesterfield Power Station

Dear Mr. Bryan--

I am unable to attend the briefing on July 6th, so am sending my comments on the draft wastewater permit being considered for Dominion VA Power's Chesterfield Power Station.

In specific, I ask that you implement the following requirements for Dominion's operating procedures:

- Pre-treat all water to be discharged, so that no harm is posed to fish and other aquatic wildlife.

- Cool the discharge water to temperatures matching those of the river water, prior to discharge.

- Examine the impact of the proposed practices on conditions needed for healthy spawning of the Atlantic sturgeon.

- Protect the river's waters so that they can continue to serve as a safe source of drinking water for all the millions of people that depend on it.

Thank you,

Mable Kinzie-Berdel

Charlottesville, VA

Bryan, Joseph (DEQ)

From: Suzanne Keller <suzheart03@yahoo.com>
Sent: Wednesday, July 06, 2016 9:51 AM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: comments

Dear Mr. Bryan,
I am unable to attend the public comment period tonight. I am deeply concerned that DEQ and the State Water Control Board are not holding Dominion accountable for its actions. You do so at the risk of public health and safety of our drinking water. The plans by Dominion or its subsidiaries to drain these coal ash ponds, treat and discharge the water are inadequate, immoral, corrupt and unacceptable. Dominion made a mess, they should be required by state government to clean it up. When DEQ, the State Water Control Board and the Governor simply rubber stamp what this company proposes, you do not serve the public interest and worse you participate in a corrupt system where a monopoly utility controls state government. Dominion's business model, burning fossil fuels for eternity and owning state government, is not only unseemly, but it underlines the fact that that they will not act on their own to clean up their mess in an environmentally acceptable way.

No discharges of toxic chemicals and heavy metals in our drinking water and no permission to keep the coal ash on site by our rivers is the only responsible way to deal with their mess.

best regards,
Suzanne J. Keller
1430 Lorraine Ave
Richmond, Virginia 23227

Bryan, Joseph (DEQ)

From: Carolyn Crighton <crighton45@aol.com>
Sent: Thursday, July 07, 2016 1:35 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Coal Ash Plan for Chesterfield

Follow Up Flag: Follow up
Flag Status: Completed

Mr. Bryan,

As concerned citizens who live, recreate and enjoy the abundant wildlife in the James River watershed, we urge DEQ to improve the proposal for the draft wastewater permit for Dominion's Chesterfield Power Station. We are concerned as follows:

1. The James River watershed serves as a drinking water source for millions of Virginians via water intakes for public water systems including the one in Hopewell downstream from the proposed discharge. One third of all Virginians live in this watershed, and water is one of the most precious commodities of the century. We cannot afford to put drinking water in jeopardy.

2. As written, the draft permit allows the discharge of arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc at very hazardous levels for fish and aquatic life. We urge DEQ to require Dominion to pre-treat the water at levels sufficient to protect fish & wildlife before the water is released. The Power station is also within an area of critical habitat for the endangered Atlantic sturgeon spawning grounds.

3. Finally, the draft permit allows Dominion to release cooling water at very high temperatures which is also harmful to fish & aquatic life.

As members & volunteers with the James River Association, the Sierra Club and the James River Park System, we have spent significant time cleaning up the watershed and appreciating the beauty of the incredible wildlife within it (to include eagles, herons, egrets, cormorants, ducks & abundant fish). We kayak, hike and swim in the James River, but most importantly it is a source of our drinking water. The James River is one of the most important resources in our region and state. Protecting it is vital to wildlife and to people. We are all interconnected. Please do the right thing and make sure that the DEQ creates a stricter and stronger draft permit for the Chesterfield Power Station. In fact, it would be best if the coal ash was removed and placed in a solid waste landfill away from the river to avoid continual groundwater contamination. Please act now to protect our river from coal ash contamination.

Sincerely,

Carolyn & Dave Crighton

Bryan, Joseph (DEQ)

From: Jason Mullins <Jason.Mullins@timmons.com>
Sent: Thursday, July 07, 2016 10:30 AM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Chesterfield Power Station Dewatering Permit

Good Morning,
As a resident of Chesterfield and an avid user of the James River I would like to voice a few concerns I have regarding Dominion's dewatering permit for the Chesterfield Power Station. I would like to see the permit modified to require 3rd party testing to make sure that any water released into the river has been treated to a point where it will not harm nor negatively impact any fish or aquatic life. Thank you for your time.

Jason Mullins, P.E.
Project Manager

TIMMONS GROUP | www.timmons.com
1001 Boulders Parkway, Suite 300 | Richmond, VA 23225
Office: 804.200.6466 | Fax: 804.560.1016
jason.mullins@timmons.com
Your Vision Achieved Through Ours

To send me files greater than 20MB click here.

Bryan, Joseph (DEQ)

From: Caryl Burtner <carylburtner@gmail.com>
Sent: Friday, July 08, 2016 3:38 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Say NO to the Dominion Power Permit

Please do everything that you can to protect the James River and well water. Further restrictions must be placed on the Dominion Power Permit. Put people above profits.

Thank you,
Caryl Burtner
3228 Patterson Ave
Richmond

Bryan, Joseph (DEQ)

From: Chesapeake Energy Center Waste Permit (DEQ)
Sent: Friday, July 08, 2016 11:21 AM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Woodruff, Melinda (DEQ)
Subject: FW: Public comment about Chesterfield coal ash pond

Rachel B. Patton, P.G.
Groundwater Remediation Specialist
Department of Environmental Quality, Tidewater Regional Office
5636 Southern Blvd.
Virginia Beach, Virginia 23462
(757) 518-2145
Rachel.Patton@deq.virginia.gov
NEW - Please direct all electronic submittals and official correspondence to the TRO Land Protection mailbox at TRO.LandProtection@deq.virginia.gov. However, you may continue to contact me directly for specific questions.

From: isabella Pezzulo [mailto:izzypezz@gmail.com]
Sent: Thursday, July 07, 2016 1:04 PM
To: Chesapeake Energy Center Waste Permit (DEQ)
Subject: Public comment about Chesterfield coal ash pond

This comment is regarding the dewatering of coal ash ponds at the Dominion Chesterfield power station.

As a Richmond Virginia resident, it is important to me that the DEQ require stricter regulations on the permit for the dewatering of the coal ash ponds. It has been scientifically verified that the contaminants in the leachate from these ponds include arsenic, and other toxics in quantities deemed unsafe by the EPA. States such as NC, SC, and GA are being increasingly sensitive about the potential for these coal ash ponds to leak and create devastating effects on ecosystems and people. All of these states have taken action in order to protect their citizens from the potentially damaging effects of the leachate from coal ash ponds. It's time for Virginia to step up, and prevent mistakes that are easily avoidable in the permitting process for dewatering.

As a college student who plans to live in Richmond long-term, I feel obligated to ask the DEQ questions about the toxins in the coal ash water, because they could certainly have an effect on people living in my city and myself. I want specifics on how often this coal ash water will be monitored. Dominion should also be required to treat the coal ash leachate from the landfill, as well as the water being drained from the ponds. I also want to know why the current permit allows for higher concentrations of toxins which are higher than those deemed safe by the EPA.

Thank you for your time in considering my concerns.

Best regards,
Isabella Pezzulo
2220 W Grace St., Richmond VA
(561) 313-9782

Bryan, Joseph (DEQ)

From: lynnpeacewilson@gmail.com
Sent: Friday, July 08, 2016 6:55 AM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: jamie.brunkow@gmail.com
Subject: Comment, chesterfield power station permit: Kepone Legacy

Follow Up Flag: Follow up
Flag Status: Completed

Mr. Bryan, I am sending an additional comment because I have not yet heard this concern: the sad ruinous story of Kepone and the James is only recently behind this part of Virginia. It took years for the river and biota to recover. Can we REALLY know and understand what may be the result of newly assaulting the middle James with coal ash dewatering? How much can the river and the life that depends upon it be expected to handle? Surely only the most strict technical standards for the permit would be merited in such a case.

Thank you, Lynn

Lynn P. Wilson
680 Crib Lane
Sandston, VA 23150
804-737-7533
***"We all live downstream."* -- David Suzuki**

Bryan, Joseph (DEQ)

From: Jane McKinley <useysly@gmail.com>
Sent: Saturday, July 09, 2016 9:22 AM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Concerns for Chesterfield Power Station Wastewater Permit

I have become concerned about the provisions in the draft wastewater permit currently proposed which includes "dewatering" of coal ash. Please give mindful consideration to the impacts on the community and environment if strict guidelines are not adopted. If not, the following impacts could be irreversible:

- the release of cooling water at high temperatures which are harmful to fish and aquatic life,
- the release of chemicals such as lead, mercury and copper at hazardous levels for fish and aquatic life,
- the pollution of public water systems which serve as the source for multiple counties and cities throughout the watershed,
- quality of life for those who hike, kayak and fish along the affected waterways.

Thank you for your consideration of these points. A strong environmental policy will serve to protect our beautiful natural resources for generations to come.

Jane McKinley
804-337-9060
--

Bryan, Joseph (DEQ)

From: Sue Gier <sue@suegier.net>
Sent: Monday, July 18, 2016 4:42 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Discharging coal ash into the James River

Doesn't sound healthy for the Chesapeake Bay watershed.

Bryan, Joseph (DEQ)

From: Bill Johnson <billatthelake@comcast.net>
Sent: Monday, July 18, 2016 5:16 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Coal ash and Dominion

Mr. Joseph Bryan,
DEQ – Piedmont Regional Office

Coal ash is a nasty substance. It contains lots of poisons, including hexavalent chromium, mercury, arsenic, and a host of other toxic chemicals. It is extremely hazardous to everything living on this planet. There is a solution to handling it, but it is not what Dominion wants. The coal ash should be dug up and placed in a lined landfill, not left in place to leach into waterways. The absolutely most valuable resource we have is water, and it is your duty to protect it. Please do the right thing. Instead of Dominion spending billions on pipelines and nuclear plants, they should be required to fix the coal ash problem the correct way. Your legacy is at stake. How will you explain to your children that you allowed Dominion to poison the environment and cause harm to the people living nearby?

Bill Johnson
PO Box 5787,
Fredericksburg, VA 22403
540-657-1733
Better to keep your mouth shut and be thought a fool, than to open your mouth and remove all doubt

Bryan, Joseph (DEQ)

From: Evelina Massie Scott <emassiescott@gmail.com>
Sent: Monday, July 18, 2016 4:30 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: coal ash ponds

Please do not permit Dominion Power to drain any of their coal ash ponds into the James River or any other river. The coal ash created as a byproduct of burning coal should be excavated and removed to lined permitted landfills, and the coal ash pond sites fully remediated.
Thank you,
Evie Scott
2561 Perkinsville Rd.
Maidens, VA 23102

Bryan, Joseph (DEQ)

From: Patton, Rachel (DEQ)
Sent: Thursday, July 21, 2016 8:38 AM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Bryan, Joseph (DEQ); Woodruff, Melinda (DEQ)
Subject: FW: Dominion permitting on the James river Rt. 5 corridor

Good morning. This comment appears to have been inadvertently sent to TRO.
Thanks,
Rachel

Rachel B. Patton, P.G.
Groundwater Remediation Specialist
Department of Environmental Quality, Tidewater Regional Office
5636 Southern Blvd.
Virginia Beach, Virginia 23462
(757) 518-2145
Rachel.Patton@deq.virginia.gov
NEW - Please direct all electronic submittals and official correspondence to the TRO Land Protection mailbox at TRO.LandProtection@deq.virginia.gov. However, you may continue to contact me directly for specific questions.

From: Weyland, Janet (DEQ)
Sent: Thursday, July 21, 2016 8:27 AM
To: Patton, Rachel (DEQ)
Subject: FW: Dominion permitting on the James river Rt. 5 corridor

Hi Rachel –

Mel may have already responded on this, I believe that this one is for Chesterfield, we should forward to PRO and probably indicate in our tracking that we shared it with them.

Janet F. Weyland
Deputy Regional Director
Department of Environmental Quality
5636 Southern Blvd.
Virginia Beach, VA 23462
Phone: (757) 518-2151
Janet.Weyland@deq.virginia.gov
Website: www.deq.virginia.gov

From: Chesapeake Energy Center Waste Permit (DEQ)
Sent: Wednesday, July 20, 2016 11:50 AM
To: Weyland, Janet (DEQ)
Cc: Woodruff, Melinda (DEQ)
Subject: FW: Dominion permitting on the James river Rt. 5 corridor

Do you think this comment was meant for a different permit? I don't want to forward it to the Chesterfield permit folks if it doesn't belong to them…

Rachel B. Patton, P.G.
Groundwater Remediation Specialist
Department of Environmental Quality, Tidewater Regional Office
5636 Southern Blvd.
Virginia Beach, Virginia 23462
(757) 518-2145
Rachel.Patton@deq.virginia.gov
NEW - Please direct all electronic submittals and official correspondence to the TRO Land Protection mailbox at TRO.LandProtection@deq.virginia.gov. However, you may continue to contact me directly for specific questions.

From: Annique Dunning [mailto:annique@sherwoodforest.org]
Sent: Tuesday, July 19, 2016 10:58 AM
To: Chesapeake Energy Center Waste Permit (DEQ)
Subject: Dominion permitting on the James river Rt. 5 corridor

As Executive Director of Sherwood Forest, home of 10th US President John Tyler and a National Historic Landmark property in the historically important Route 5 corridor, and as a resident of Charles City County who lives on the James River, I call upon the DEQ and Dominion to do their part to protect the invaluable asset to our state, and indeed our nation, that this area represents.

Current draft of the regulations concerning coal ash waste in Chesterfield would allow the waste to remain in unlined pits adjacent to a TIDAL river. Knowing the environmental devastation caused by so many coal ash spills in non-tidal rivers, I don't believe DEQ would be acting in the interest of the Commonwealth to allow these solid wastes to remain anywhere near a tidal river where a spill would have exponentially worse effects to both the businesses downriver and to the many residents of the Commonwealth who enjoy recreational use of the James River.

Please require Dominion to relocate the coal ash waste to modern, lined landfills preferably away from rivers.

Annique Dunning
Executive Director
Sherwood Forest Plantation Foundation
(804) 829-5377

Bryan, Joseph (DEQ)

From: Bill and Judy Dent <billandjudy.dent@ntelos.net>
Sent: Tuesday, July 19, 2016 9:12 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Don't authorize polluting the James River with coal ash

Mr. Joseph Bryan, DEQ

Dear Mr. Bryan,

I find it hard to imagine how the DEQ could permit Dominion Power to drain coal ash ponds into the James River. Anyone who has been concerned about environmental issues knows how this means dumping hazardous chemicals into the James River. I don't know why we would have a Department of Environmental Quality to do that!

Yours truly,

(Mr.) William H. Dent, Jr.
1690 Glenside Drive
Rockingham, VA 22801-2391
(540) 437-8942

Bryan, Joseph (DEQ)

From: Ben Hawkins <actions+672861@muster.com>
Sent: Tuesday, July 19, 2016 4:58 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Improve the standards

Dear Joseph Bryan,

No mixing zone. No direct 108 degree water discharge in the Farrar Gut.

Sincerely,

Ben Hawkins
1427 Lakeview ave
richmond, VA 23220
8047888811

Bryan, Joseph (DEQ)

From: Mike Ostrander <mike@discoverthejames.com>
Sent: Tuesday, July 19, 2016 11:29 AM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Mike Ostrander
Subject: Chesterfield Power Station: Public Comment Submission

TO: Joseph Bryan
DEQ
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060

FROM: Capt. Mike Ostrander
Discover the James
7239 Lookout Drive
Richmond, VA 23225

Mr. Bryan,
Hello and thanks for taking my email about the coal ash dewatering at the Chesterfield Power Station. I find this situation an unbelievable one in today's day and age when we understand how important our natural resources are ... in particular our rivers. I am a commercial fishing guide and eco tour guide on the James River and spend a lot of time in the warm water areas around Dutch Gap, especially in the winter time and understand how important this area is as it has become a unique ecosystem due to the warm water that has been discharged in this area for decades.

I have seen arial images of the amount of water that is already being pumped out directly from the coal ash pond onto the shore, down a bank, and flowing directly into the river. Its disheartening. I have been eating catfish out of the river for years, and with the combination of the coal ash pond discharge and the CSOs (Combined Sewage Overflows) that are happening with regularity, I am not eating any more fish, nor are the people I am taking out on guided fishing trips. Often people book trips who want to keep fish to eat, and this is certainly going to affect these bookings when they cannot keep any more fish. Additionally, in the cold weather months, commercial fishermen use the 'Dutch Gap Conservation Area' as a main area to work their nets. They use both hoop nets as well as gill nets to catch tens of thousands of pounds of fish to be consumed by humans. The long commercial gill nets do not discriminate and all the fish they catch are for resale and consumption, and this is in the heart of the Dutch Gap coal ash pond discharge.

It's unfathomable to think this discharge may become greater as this area (Dutch Gap Conservation Area). The Dutch Gap Conservation area is home to many species of birds, fish and mammals, especially in the winter time. The Dutch Gap Conservation area which is right in the heart of the coal ash discharge has it's own unique ecosystem during the colder months of November through the end of February due to the hot water discharge from the power plant. Over the decades, fish and birds come to this area because it is warmer and the river does not freeze over. During this time you will find:

Thousands of cormorants.
High number of great blue heron.
Numerous migratory bald eagles from Canada and New England.
At least two pair of resident bald eagles have their 'permanent' territories within the Dutch Gap Conservation area. These birds do not migrate and do not leave their territories.

At least two other resident pair of bald eagles use a part of the Dutch Gap Conservation area (None of the resident pair of bald eagle have territorial overlap).

Huge numbers of fragile threadfin shad.

Potentially millions of fish stay in this area including schools of striped bass, largemouth bass, saugeye, blue catfish, gizzard shad, various minnows, black crappie.

There has even been a pair of osprey, the only pair that I know of in Central Virginia, that has overwintered in this area for three or more of the last five years.

In the early spring migratory fish such as the blue back herring, alewife, American shad and hickory shad use this area as well. Blueback herring and alewives are all federally protected while the American shad is also protected, but not to the level of the herring.

And then we have the Atlantic sturgeon, a federally protected, endangered specie that 'may' use this area. They certainly use the main channel of the river, where the old river channel of the Dutch Gap Conservation area connects to the main channel. The rip rap at the base of the 295 bridge has been identified as a highly potential breeding area for the Atlantic sturgeon and this is less than one half a mile from the interaction of the old Dutch Gap channel and the main river channel.

The Clean Water Act is one of the primary reasons for the comeback of the bald eagle and Atlantic sturgeon (to name just a couple of species). To harm the river any further would go against the Clean Water Act and disrupt these wonderful conservation success stories we are experiencing right now. The James River is THE location for the greatest comeback of the bald eagle in the entire continent. That's pretty darn special, when once this river was so polluted we had no bald eagles.

Given the amount of people who catch and keep fish, and the multimillion dollar blue catfish commercial fishery, this is going to take a fish that is already at the edge of legal consumption and push it over to one that is not available for human consumption. That will put a few people out of jobs.

The James River is too valuable a resource for anyone to abuse any further. These power plants have made millions of dollars for a lot of people already and they have used the James River for decades to get to this point. And this point we are at is one that needs to begin tipping back towards that of conservation and not abuse.

Thanks for taking the time to read this, and feel free to call or email with any questions. Take care, and I as well as millions of Virginians hope you do the right thing and block the permit to allow coal ash dewatering.

Respectfully submitted,

Capt. Mike

Capt. Mike Ostrander
Discover The James
(804) 938-2350
Mike@DiscoverTheJames.com
www.DiscoverTheJames.com

Bryan, Joseph (DEQ)

From: Chuck and Debbie Epes <epes.family@verizon.net>
Sent: Wednesday, July 20, 2016 6:19 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Dominion Power Chesterfield coal ash permit

Dear DEQ,
The James River and other waters of Virginia belong to the citizens of Virginia, not Dominion Power, and by statute the Commonwealth (DEQ) is charged with protecting the waters of Virginia for use and benefit of the people. To quote Article 11 of the Virginia Constitution: **"Further, it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth."**
The Constitution doesn't say it's okay to add some pollution; it clearly requires the Commonwealth to protect its waters from pollution.
Therefore, it is constitutionally incumbent upon DEQ to ensure the coal ash water discharge permit for Dominion Power's Chesterfield power plant, and the company's other power plants, require that the company clean its coal ash pond discharge water to the maximum extent possible so that it does not contribute additional pollution to the James River and other state waters. Mixing zones and other strategies that seek to dilute toxic pollutants in state waters are antiquated, highly dubious strategies, especially given all the unknown consequences and cumulative impacts of chemicals introduced my man in the environment. Contrary to what Article 11 requires, such strategies permit more pollution into state waters, in this case into a James River already on DEQ's impaired waters list. It is illogical, irresponsible, and unconstitutional for the state to permit Dominion to discharge still more pollution, however diluted, into the James. As a Virginia citizen and user of the river, I ask that DEQ ensure Dominion Power adds no more pollution to the public's river.
Regards,
Charles Epes
Richmond, Va.

Bryan, Joseph (DEQ)

From:	Frances Bro <oldscouts2@aol.com>
Sent:	Thursday, July 21, 2016 10:30 PM
To:	Chesterfield Power Station Water Permit (DEQ)
Cc:	oldscouts2@aol.com
Subject:	Public Comment to DEQ

Frances Broaddus-Crutchfield
1196 Huguenot Trail
Midlothian, Virginia 23113-9114
oldscouts2@aol.com
July 21, 2016

Mr. Joseph Bryan
DEQ Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
ChesterfieldPowerStationWaterPermit@deq.virginia.gov

So what will happen? Capped coal ash pond.
Maintained for 30 years. What monitoring beyond?
The best possible conservation
Seeks strictest effluent limitation.
Toxic leachate generation
Needs more treatment than in sedimentation.
Bottom Ash Pond regulation
Needs detailed specification
For the pond's sedimentation
To stop contaminated water percolation.
Tidal water expectation
Rising seas and storms' specification
Find removal and excavation
Are the most useful implementation
To cause dramatic drops in contamination.

Frances Broaddus-Crutchfield
oldscouts2@aol.com

Bryan, Joseph (DEQ)

From: Jane Kirchner <janekirch@msn.com>
Sent: Thursday, July 21, 2016 8:10 PM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Do not allow toxic releases into the James River

To: Joseph Bryan, DEQ – Piedmont Regional Office, Commonwealth of Virginia

Dear Mr. Bryan,

Please do not approve any type of wastewater permit for Dominion's Chesterfield Power Station. If anything, your department should be solely focused on cleaning up pollution in our waterways, restoring our natural systems and closing down coal-fired power plants like the Chesterfield Power Station. We do have clean energy alternatives.

Dominion Power should be required to use the profits they have made off of citizens like me to stop generating toxic metals and dispose of any existing toxic substances in the absolutely safest means possible that does not include release into waterways. **Use of a mixing zone permitting any discharge of arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc should be prohibited.**

Dominion Power should be required to immediately stop any operations that require the release of cooling water at high temperatures. Dominion's 2003 study of the thermal plume demonstrated that the discharge raised the temperature of Farrar Gut as high as 108F during the summer. That is unacceptable. **Any release of cooling water into any waterway or any watershed should be prohibited.**

Dominion Power should be required to stop any operations that require drawing of any water from Virginia's waterways. **Drawing of millions of gallons of river water into the plant should be prohibited.**

Thank you very much for protecting the citizens of Virginia and not allowing any releases into or drawing from the James River by Dominion Power. I am counting on you to do the right thing as is your responsibility to the Commonwealth, and not working on behalf of corporate profits.

Sincerely,

Jane Kirchner
20506 Quarterpath Trace Circle
Potomac Falls, VA 20165

571-215-1678

Bryan, Joseph (DEQ)

From: Winter, Kyle (DEQ)
Sent: Friday, July 22, 2016 8:55 AM
To: Bryan, Joseph (DEQ)
Subject: Chesterfield Power Statio Permit Comments
Attachments: 2016_07_21_rcf_Dutch_Gap_Comments.pdf

Kyle Ivar Winter, P.E.
PRO Deputy Regional Director
4949-A Cox Road
Glen Allen, VA 23060
(804) 527-5052
kyle.winter@deq.virginia.gov

From: Chris French [mailto:robert_c_french@yahoo.com]
Sent: Thursday, July 21, 2016 11:58 PM
To: Winter, Kyle (DEQ)
Subject: Chesterfield Power Statio Permit Comments

Kyle:

Please find attached my comments on the Chesterfield Power Station Permit. Could you please send me an email acknowledging receipt?

Hope you are well and look forward to seeing you in the near future.

Regards,

Chris

Robert C. French
9415 Aynhoe Lane
Mechanicsville, VA 23116
robert_c_french@yahoo.com

July 21, 2016

Virginia Department of Environmental Quality
c/o Kyle Winter
4949A Cox Road
Glen Allen, VA 23060
E-mail: Kyle.Winter@deq.virginia.gov

Re: Comments on Draft VPDES Permit No. VA0004146, Dominion Chesterfield Power Station

Dear Mr. Winter:

I appreciate the opportunity the Virginia Department of Environmental Quality has made to allow for public comments to be made on the Draft VPDES Permit No. VA0004146, Dominion Chesterfield Power Station. While I was not in a position to attend the public hearing for this permit, my individual comments and concerns are enclosed.

As noted in a previous comment letter regarding the Bremo Power Station, I feel it is important to note I understand this process is about improving environmental quality within the James River and the Commonwealth. I further understand the proposed actions are done so in order to meet the 2015 U.S. Environmental Protection Agency (EPA) final Rule requirements that regulates the disposal of coal combustion residuals (CCR).

My comments follow below.

1. **Permitted Discharge (pre-dewatering)**
    a. There is evidence that the area downstream of outfall 004 has visible waste lining the shoreline and floating in the water. The associated pollutant sources that are controllable (e.g. wastewater, dust or other sources) originating from Chesterfield Power Station currently entering Farrar Gut should be noted and controlled within the context of the reissued - and currently administratively continued - must be controlled. The floating booms blocking portions of Farrar Gut near outfall 004 are not adequate for preventing waste from entering the river.

2. **Coal Ash Pond Drawdown and Water Treatment**
    a. EPA has been very clear in their guidance documents that mixing zines for persistent bioaccumulative toxins (PBTs) should be addressed conservatively in order to limit aquatic and biological impacts (See http://www.epa.gov/wqs-tech/mixing-zone-

documents). It is well know that PBTs (including some metals, complex chemicals such as Polychlorinated Biphenyls, etc.) do not dilute in the same manner that other pollutants do. Where technology is available to treat waste to better standards, DEQ has authority to set a higher bar and eliminate use of a mixing zone. The fact that the primary pollutants are metals which bio-accumulate and do not break down in the environment also necessitates using the best technology available.

b. The enhanced treatment "triggers" are designed and intended to ensure all water discharged during drawdown meets water quality standards at the point of discharge. As Dominion has agreed to incorporate enhanced treatment when necessary, permit limits should be updated to reflect these low levels.
c. There are concerns that Dominion does not plan to fully implement the new Effluent Limit Guidelines and Standards (ELG) until 2022. These standards should be applied as soon as possible to protect existing water quality standards and prevent further degradation of waters currently listed as impaired in the 305(b)/303(d) Water Quality Assessment Integrated Report. It is very concerning that the ELG standards will be potentially delayed for up to eight years.
d. Drawdown limits for Bremo, Possum Point and Chesapeake Power Station were set at six inches per day, while Chesterfield's draft permit limits are set at two feet per day. Drawdown at too rapid of a rate could harm the integrity of the coal ash impoundment and increase risk of dam failure and pollution into the James River. Furthermore, there are concerns that mixing between the coal ash sediment and water solution above this sediment layer will occur quickly with such a proposed rapid drawdown. Conditions should be added to the permit to allow for increased monitoring and adaptive management of the treatment process as the water levels begin to approach the sediment layer in order to prevent potential changes in the discharged effluent.

3. **Atlantic Sturgeon**
    a. In 2012, Atlantic sturgeon were listed as a federally endangered species. Atlantic sturgeon numbers are critically low in the Chesapeake Bay region due to overfishing, habitat loss, and pollution impacts (many yet to be determined). As noted in both the popular press and in recent peer reviewed published research, it is well known there is a small population of Atlantic sturgeon found within the James River adjacent to the Chesterfield Power Station.
    b. The presence of the federally endangered Atlantic sturgeon in the river near Chesterfield Power Station calls for added scrutiny of the VPDES permit, to ensure the best technology available is used for each level of wastewater treatment.
    c. Dominion has not acquired an incidental take permit, which is required under section 10 of the endangered species act for activities that may result in the harassment, capture, or death of an endangered species. To prevent ongoing takes of endangered species related to operation of the power station, Dominion must develop a habitat conservation plan and obtain an incidental take permit immediately.
    d. To restore spawning habitat and aid in the recovery of Atlantic sturgeon, three spawning reefs have been constructed in the James River and are located downstream of Chesterfield Power Station – the closest approximately 3 miles downstream.
    e. Recently the National Marine Fisheries Service proposed a draft rule designating critical habitat for Atlantic sturgeon. Critical habitat includes biological or physical features that are critical to the conservation of the species. The draft designation highlights the

importance of protecting this stretch of river in order to conserve the endangered species.

4. Page 23 & 24 of the draft permit addresses Polychlorinated Biphenyls (PCBs).
    a. The permit explicitly states, "There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid. Compliance with this requirement will be determined using EPA Method 608 (as referenced in 40 CFR Part 136)."
    b. Page 7 of the draft permit Fact Sheet also addresses PCBs, stating that data available does not indicate the facility is contributing to the PCB impairment.
    c. Many of the statements in the permit are inconsistent with the current requirements of DEQ's Total Maximum Daily Load (TMDL) program, which uses EPA Method 1668 in order to determine the total PCB loadings that might be occurring to a waterbody in the Commonwealth.
    d. The James River is listed as impaired for PCBs and is currently undergoing the development of PCB TMDL.
    e. The proposed PCB monitoring requirements using both EPA Method 608 and 1668 are inadequate for determining whether PCBs are present in the facility discharges. Of concern, only outfall 301 has 1668 monitoring associated with it. This is inconsistent with DEQ's PCB Point Source Monitoring Guidance (GM09-2001), which lists a variety of potential activities that could have PCB contributions associated with permit activities. Outfall 301 is not representative of the entire facility.
    f. DEQ should expand 1668 monitoring to more permitted outfalls in order to be consistent with DEQ policies and guidance.
    g. At this moment, there is no reasonable assurance the discharges in this draft permit will not increase PCB loadings to the James River.

Again, I appreciate the opportunity to provide these comments as an individual citizen of the Commonwealth. As noted before, I am a user of the James River and its resources. My family also uses the James River to the extent allowed under the Commonwealth's laws.

I thank you for your consideration of these comments. I would be pleased to make myself available to address any questions or concerns regarding my comments.

Respectfully,

Robert Christopher French

Bryan, Joseph (DEQ)

From: Jessica Sims <jessicaleesims@gmail.com>
Sent: Thursday, July 21, 2016 10:22 AM
To: Chesterfield Power Station Water Permit (DEQ)
Subject: Chesterfield Power Station Permit

Good Morning Joseph Bryan,

I am writing regarding the draft wastewater permit for Dominion's Chesterfield Power Station on the James River.

My concerns are the following: *use of a mixing zone as a way to dilute the waste-water.*

Diluting the coal-ash water is not the only solution. The waterways of Virginia are not a repository for Dominion's laziness in finding better and safer methods of disposal. That water may flow downstream and dilute, but the sediment in our waterways will be permanently affected.

R*elease of cooling water at a high temperature*

Will the water be cooled to an appropriate temperature as to not disturb aquatic life? Does the DEQ have that information qualified as to what is appropriate?

Water intake process -- who monitors how much this affects the James? Dominion?

Dominion knowingly and illegally, dumped 30+ million gallons of coal-ash wastewater into Quantico Creek ahead of their approved permit. Even with this information, the DEQ recommended that the permits be approved at the January 9th, 2016 hearing. Is Dominion above the law? Even when they fragrantly violate the permit process, they are rewarded with permits to destroy Virginia's waterways?

We know that Dominion can't be truthful and does NOT have Virginia's best interests in mind. It's up to the DEQ to make sure the BEST and SAFEST practices are being met.

This affects ALL of us – Dominion does not have "dominion" over our state and its waterways!

Please remember that this is not about pleasing Dominion (or the politicians to whom they have donated). This is about something much bigger and larger, the future of our commonwealth's health and the safety of it's citizens.

DO NOT GRANT THE PERMIT, Dominion can do better.

Jessica Sims

jessicaleesims@gmail.com

412 Walton Park Road

Midlothian, VA 23114

Bryan, Joseph (DEQ)

From: Chesapeake Energy Center Water Permit (DEQ)
Sent: Thursday, July 21, 2016 3:19 PM
To: Bryan, Joseph (DEQ)
Cc: Weyland, Janet (DEQ); Nold, Maria (DEQ)
Subject: FW: Coal ash permit - Chesterfield

Hi Joseph,

Another one.

Thanks,
Susan

-----Original Message-----
From: Eugenia Anderson-Ellis [mailto:eandersonellis@gmail.com]
Sent: Thursday, July 21, 2016 2:01 PM
To: Chesapeake Energy Center Water Permit (DEQ)
Subject: Coal ash permit - Chesterfield

Please revise the draft permit to eliminate the mixing zone. Water should be fully treated prior to release and temperature compatible to the river temperature.
Eugenia Anderson-Ellis

Sent from my iPhone

ORIGINAL

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

PIEDMONT REGIONAL OFFICE

4949-A COX ROAD

GLEN ALLEN, VIRGINIA 23060

VIRGINIA ELECTRIC AND POWER COMPANY

VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NUMBER VA0004146

PERMIT REISSUANCE & COAL ASH POND CLOSURE

DOMINION CHESTERFIELD POWER STATION

Public Hearing

Wednesday, July 6, 2016

7:00 P.M.

Public Hearing Location

Thomas Dale High School West Campus

3900 West Hundred Road

Chester, Virginia 23831

Before Robert Dunn, Chairman

State Water Control Board

APPEARANCES:

Robert Dunn, Chairman
State Water Control Board
Hearing Officer

Kyle Ivar Winter, P.E. Deputy Regional Director
Piedmont Regional Office
Virginia Department of Environmental Quality
4949-A Cox Road
Glen Allen, Virginia 23060

SPEAKERS:

Cathy Taylor, Senior Environmental & Sustainability Advisor
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ROBERT DUNN: Good evening. I'd like to call this public hearing to order. I'd ask anyone that has a cell phone, please shut it off during the hearing. We don't want to disrupt the meeting or embarrass yourself. It's good to see such a crowd here. So good evening ladies and gentlemen. My name is Robert Dunn, I'm a member of the State Water Control Board and I will serve as the Hearing Officer for tonight's hearing. Before I introduce the staff, I would like to clarify that the State Water Control Board is a policy-making body of citizens appointed by the Governor and empowered by law to adopt regulations and issue permits. The Department of Environmental Quality is an agency of the state executive branch with a responsibility for administering laws and regulations adopted by the Board and I am not a member of the Department.

In addition, I want to point out that state and federal laws and regulations are the basis for the actions taken by the Board and the Department. Neither the Board nor the Department has the authority to change laws.

At this time, I'd like to introduce the principal DEQ staff members present and you've probably already met them earlier. Mr. Mike Murphy, Regional Director; Mr. Kyle Winter, next to me, is the Deputy Regional Director; Mr. Joseph Bryan, who is the Water Permit Writer. We are taking all public hearings for the official record and we have a Court Reporter here who will also be taping.

The hearing will close at 11:59 p.m. on July 21, 2016. The State Water Control Board is holding this hearing to receive comments on the proposed reissuance of the Virginia Pollutant Discharge Elimination System Permit Number VA0004146 for the Virginia Electric and Power Company's Chesterfield Power Plant.

Notice of the hearing was published in the Richmond Times Dispatch on June 6th and June 13th, 2016. Notice of this hearing was also published in the Style Weekly on June 8th and June 15th, 2016.

This fact-finding proceeding is being held pursuant to Section 2.2-4019 and 62.1-44.1510 of the Code of Virginia and Board's Procedural Rules Number One.

The State Water Control Board will ultimately decide whether to reissue, revise or reject the permit. And there will be no decisions made tonight. Let me restate that again. There will be no decisions made here tonight. The State Water Control Board will be making a decision on this proposed issue at the next Board meeting in September. Please be assured that we will consider all relevant information that you present regarding proposed activity.

The general procedure for the hearing will be as follows. Mr. Kyle Winter will make a staff presentation, followed by a statement from the representative of the Virginia Electric and Power Company. Next, I will call on

any elected officials or their representatives followed by those people who have indicated on the sign-up sheets that they wish to comment. Finally, we will hear from anyone else that would like to make a statement. When you speak, please state your name and who you represent if it's other than yourself. As the hearing officer for this hearing, I reserve the right to restrict comments based on length of time and comments. Each speaker will have three minutes and if you agree with the previous speaker, you can just say I agree with him and not repeat their comments. Again, each speaker will have three minutes and at the end of three minutes, I'll ask you to close your comments if you're not finished. We are recording all public comments for inclusion in the official record. The public comment period for this permit will close on June 21st, 2016.

At this time, I'd like to call on Mr. Winter to give the staff presentation.

KYLE WINTER: Thank you, Chairman Dunn, and good evening everyone. I'm Kyle Winter, Deputy Regional Director with the Department of Environmental Quality's Piedmont Regional Office.

On June 2, 2009, DEQ received an application from Virginia Electric and Power Company for the reissuance of Virginia Pollutant Discharge Elimination System Permit Number VA0004146 for discharges from the Dominion

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Chesterfield Power Station to the James River in Chesterfield County. Addenda to the application were received on July 8, 2009, October 8, 2009, July 21, 2015, October 19, 2015, November 19, 2015, February 12, 2016, March 7, 2016, May 9, 2016 and May 23, 2016. The applicant proposes to continue discharging once-through condenser cooling water, treated industrial wastewater, and stormwater.

In addition, the applicant proposes to release wastewaters from dewatering activities associated with the closure of the coal ash ponds at the facility. The closure of the coal ash ponds is being performed pursuant to a 2015 United States Environmental Protection Agency final Rule that regulates the disposal of coal combustion residuals. Coal Combustion Residuals Surface Impoundments have been regulated under the VPDES program during their operational life. The Virginia Waste Management Board's Solid Waste Management Regulations apply after their operational life and provide for closure requirements in 9 VAC 20-81-370. The long-term management of these impoundments includes closure, post-closure, and ground and surface water monitoring, which will be addressed by the solid waste program in accordance with the Virginia Solid Waste Management Regulations and requirements and the EPA rule as applicable.

Existing groundwater monitoring, corrective action and/or risk assessment plans currently in

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effect under the VPDES permit will remain in effect until such time that they are superseded by a groundwater monitoring program pursuant to a solid waste permit for closure and/or post-closure.

The permit limits for the discharge of once-through condenser cooling water are based on combined flows of 1054 MGD. The permit limits for the discharge of wastewaters from dewatering activities are based on a maximum flow of 5.0 MGD, million gallons per day.

The application was provided to the U.S. Fish and Wildlife Service, Department of Game and Inland Fisheries, and Department of Conservation and Recreation on December 16, 2015, May 20, 2016 and May 27, 2016.

Notice of the proposed permit action and public hearing was published in the Richmond Times Dispatch on June 6th and June 13th, 2016. Notice of the proposed permit action and public hearing was also published in Style Weekly on June 8th and June 15th, 2016. DEQ sent the public notice to the Chesterfield County Administrator, Chairman of the Chesterfield County Board of Supervisors, and the Richmond Regional Planning District Commission on June 6, 2016. DEQ also sent the draft permit, draft fact sheet, and public notice to the U.S. Fish and Wildlife Service, Department of Game and Inland Fisheries, Department of Conservation and Recreation, and EPA on June 6, 2016.

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The public comment period totals 45 days, establishing a period for providing written comment before the public hearing that exceeds the minimum requirements and a shortened period for providing written comment after the public hearing. The comment period for this permitting action closes on July 21, 2016.

During the public comment period to date, the Department of Environmental Quality has received comments from more than 540 citizens via electronic mail. DEQ staff will summarize and prepare responses to all comments and present them to the State Water Control Board for their consideration. The comment response document will be posted on DEQ's website.

This concludes the staff presentation. Thank you.

ROBERT DUNN: Thank you, Mr. Winter. At this time I'd like to call on representatives of Virginia Electric and Power Company and I believe that's Ms. Taylor.

CATHY TAYLOR: Good evening. My name is Cathy Taylor. I am the Senior Environmental and Sustainability Advisor for Dominion.

Thank you for the opportunity to provide comments associated with the draft water permit renewal for Chesterfield Power Station.

Since Chesterfield Power Station began

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operations in 1944, it has been an important part of our generation fleet. Today, Chesterfield is the largest fossil-fueled power station in Virginia and supplies about twelve percent of the electricity in Dominion's service territory. It is also an important asset to the community and local economy, with 257 employees supporting operations 24 hours a day, seven days a week to ensure reliable energy for our customers.

Over the last decade, Dominion has implemented significant environmental improvements at the station, with nearly $1 billion invested in air pollution control equipment alone. This equipment has doubled the size of the station's footprint and has positioned it as a national leader among other coal stations in reducing air emissions.

The next phase of environmental improvements at the station involves the closure of two coal ash ponds and conversion to dry ash management as well as other wastewater enhancements.

The draft permit under consideration by the Virginia Department of Environmental Quality is a Virginia Pollutant Discharge Elimination System (VPDES) permit renewal that incorporates new stringent water permit limits that will apply to the station.

These new stringent limits and monitoring requirements are associated with the station's plans

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to close the ash ponds as required by the Coal Combustion Residual Rule and implementation of new requirements under the Effluent Limitation Guidelines from the Environmental Protection Agency. Dominion has developed a proactive plan for complying with these rules and our schedule is well ahead of the required regulatory deadlines.

The permit renewal will govern all water releases from the station, including closure of the coal ash ponds, scrubber operations, low volume waste and leachate, and will set progressively stricter limits to improve the water quality of the discharges from the station over the next six years. Permit limitations have been set using well-defined scientific methods to ensure that water releases from the station protect aquatic life and other uses of the James River.

In regard to the closure of the ash ponds, Chesterfield is unique because unlike the other generation stations where we are closing ash ponds in Virginia, we continue to burn coal at this station. Dominion is constructing a new onsite state-of-the-art lined landfill to safely manage future ash generated. Only after the new state-of-the-art landfill is constructed can we begin closing the ash ponds.

The first step in closing the ponds is to remove the water. This step is also known as dewatering and will be similar to what is already underway at our Bremo and

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Possum Point stations. During the dewatering process, we will treat the water using a multi-stage process prior to release. The draft permit includes a requirement for Dominion to submit a Conceptual Engineering Report to DEQ that describes the wastewater treatment system that will be used to ensure compliance with the very strict discharge limits set in the permit. The Conceptual Engineering Report must be approved by DEQ before we begin constructing the wastewater treatment system.

It is important to note that the Chesterfield draft permit incorporates the additional measures being implemented at Dominion's Possum Point and Bremo Power Stations, both of which use frequent in-line process monitoring for key parameters and threshold concentrations at or below water quality standards to trigger when an enhanced treatment system is used.

Prior to release, the water will be tested by a third party to ensure it meets federal and state requirements. The draft permit requires sampling to be conducted three times a week with weekly reporting to DEQ. Dominion will post these results weekly on our website.

We are committed to doing this right. We live here, too, and want to ensure our neighbors and the community knows exactly what we're doing, when we're doing it, and why.

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We expect water releases as part of the ash pond closures will begin in the fall of 2017 once the conversion to dry ash management is complete and the onsite, dry ash landfill is operational.

After we remove the water from the ponds, we will permanently seal the sites by covering them with a synthetic cap, two feet of soil and grass. This engineered cover system will protect groundwater by preventing rainwater from reaching the ash. We will monitor the groundwater for at least thirty years.

Regarding other wastewater discharges from the station, the draft permit sets new lower limits that will require the design and installation of a number of new treatment processes, including a new wastewater treatment system for low volume waste. The draft permit also includes thermal limits that ensure aquatic life in the James is fully protected. As part of our plans to comply with the EPA's Final 316(b) Rule, Dominion will complete biological studies and technological evaluations as specified in the draft permit to reduce potential impacts of water withdrawal on aquatic species.

We support the draft permit to allow completion of the project in full compliance with state and federal requirements. The permit renewal is considerably more stringent than the existing permit, includes significant reductions in effluent limits and will be fully protective of

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human health, water quality and aquatic life in the James River.

Thank you for the opportunity to provide comments on the draft permit.

ROBERT DUNN: Thank you. At this time is there any elected official representative here that wishes to speak? Seeing or hearing none, we'll start by calling on those that have signed and have indicated they'd like to speak.

NICOLE ANDERSON-ELLIS: I'm here representing

ROBERT DUNN: And you are ma'am?

NICOLE ANDERSON-ELLIS: I am Nicole Anderson-Ellis. You asked if there are any elected officials here. Again my name is Nicole Anderson-Ellis and I'm Vice Chair of the Henricopolis Soil and Water Conservation District and I thank you very much for this opportunity to address to provide feedback on this draft permit. The Henricopolis Soil and Water Conservation District is an independent governing body and we share boundaries with Henrico County, which means that this permit and the facilities that are discharging water in the southernmost tip of our district. Last year we've been with DEQ on how to address to the EPA about closing the coal ash pond and guarding the natural resources of our sister and the entire region.

Toward this end, we request the following revisions to this draft permit. Allowing this

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facility to discharge cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc. Virginia laws allow industrial facilities, factories and power stations to release heavy metals in the waterways but the levels here proceed those knowing the harm to aquatic wildlife. We ask that the water entering the James be held to the highest standard currently in the permit and that the revised permit require Dominion to pretreat water to bring heavy metals below the known threshold for biological risk and other aquatic life. Leaking into the James River is at a temperature high enough to harm fish and other aquatic wildlife and we ask that the next draft require further cooling and that these standards of treatment be applied to all water including leachate from the coal ash landfill.

I'd also make a suggested revision. Speaking not as a member of the Water Conservation Board but as a citizen of the region and an active paddler and mother. The current draft of this permit provides for thirty years of care, but the heavy metals that we're discussing will be a danger thirty years from now as they are today. I'd like to think that in thirty years, my daughter who is now eleven will be taking her children on the James River to paddle and I want to make sure that they are safe as well. So I would ask that you revise the draft permit to include a long view plan for ongoing monitoring and care.

Finally, to be noted it says suddenly

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requires Dominion relocate their toxic waste piles away from the tidal surge in the James River. We fully support that revision as well. Thank you very much.

ROBERT DUNN: We will call on those that have signed up and a three minute limit. And Mr. Winter will call your name and we ask you to state your name and who you represent or some group or yourself. Please identify that.

KYLE WINTER: John P. Flannery.

JOHN P. FLANNERY: I'm John P. Flannery. Good evening. My name is John Flannery. I come here from Loudoun County because I'm concerned about Dominion's reputation, particularly when it comes to questions of clean water among other things. I'm not here as an elected official though I am elected in Loudoun County to the Soil and Water Conservation District there and I'm the treasurer of the District.

I'm concerned about millions of gallons of water with heavy metals as referenced by the last speaker and lead and arsenic. It's a deadly menace A, to the humans and B, to the life of the river and also to aquatic life. And then there is a time when the sturgeon we discovered is in recovery from what we believe was its extermination and extinction.

Yet here we are talking about what levels of poisons we may release into the James River. One of our concerns, and I share the same concerns about the

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temperature of the water coming out, it's supposed to be in the nineties; that's the temperature of the water. We have to talk about it being cooler and we have to be concerned about this toxic system that we're preparing to release into the James River, intending to do so and how that compares to the negligence in Flint, Michigan. Remorse and regret is not an accepted approach to how we deal with the safety of our rivers and water. What downstream lives because that river lives placed there because that river lives. We propose to limit that Bremo permit and as I understand it and that was appealed and revised and approved and it can be improved again and it should be improved again. It's too late after the trigger hits to deal with the remorse that we should have done more and yet that's where we stand at that threshold.

We must enhance the treatment, the discharging waters and we must have stricter allowable thresholds as the last speaker said and I join her for what she said. The volume of the discharged waters if we go forward have to be decreased along with the velocity of the water. The samples of the fish tissue and so forth and determine the viability of aquatic life and there has to be a time reference as to when the sample was taken and when the report is given so that feedback will actually mean something when we are testing the tissue and to see what dangers if any are being presented by the discharge into the river.

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Thomas Jefferson gave us some instruction on how to measure environmental fences. Jefferson thought the proposition and said it in a letter to Madison quote, the earth belongs and the use of it to the living and use of is a term I'm sure you're familiar with; by that term use of, Jefferson meant that while one may derive a benefit from the river and the James in this case, focus and the proof, one may only use the river, one doesn't alter the uses. So there is something for her daughter to go into a stream with perhaps her children years from now and people may fish and may use the rivers and so forth.

ROBERT DUNN: Can you wrap up?

JOHN P. FLANNERY: Yes, I can. As verbose an Irishman as I may be and one of the things that's said all the time, it has to be economically feasible. That's fine but we've been underwriting a toxic fossil fuel plant and should not underwrite this and our health and risk to the life of the river. Thank you for your time.

ROBERT DUNN: Thank you.

MR. WINTER: Don Kaupp.

DON KAUPP: I'm Don Kaupp, I represent nobody and I attended the Bremo meeting and this looks a whole lot better. I also had a hard time understanding parts per million, volume and velocity but I do want thank DEQ and Dominion, you guys know all about it. Thank you.

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MR. WINTER: Glenn Besa.

GLENN BESA: Thank you. My name is Glenn Besa. I'm a citizen and I live in Chesterfield County and live in the vicinity of the discharges and I'd like to echo some of the other concerns here with regard to discharges and the use of a mixing zone. I don't want to be paddling in a mixing zone, I think that's ridiculous and I think we should clean up the discharges so we don't have to worry about exposure. In fact, in that area that's being designated as the mixing zone, the critters that live in that river I don't know that a mixing zone and in a wider area are getting exposed to the pollution.

Frankly, I think the permit should be more stringent. Just to give you an example, the standards that were established for Bremo and not the standards that DEQ agreed to but the standards that were reached as a result of a settlement so DEQ needs to raise the bar. With regard to the State Water Control Board Mr. Dunn and I've been to many of those meetings in the past and they tend to basically go along with DEQ and I suggest to you that you should ask some questions and listen to citizen's testimony and not take DEQ's word for it because frankly I don't think that they necessarily do the best job when it comes to these permits and the Bremo case is a very good recent example of that.

I want to point out, too, that there was an article in the Richmond Times Dispatch and Duke University

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has been able to establish they can actually determine if pollutants in the river are coming from coal ash. They did some testing and this is an article that was in the paper June the 10th in the Richmond Times Dispatch. They're using isotopes and various chemicals like boron. They found and they tested the water above the plant and they tested the water below the plant and they found that the boron level were eight times higher than the background levels above this point and the sample they took below the Chesterfield plant and the arsenic was seventeen times or seventeen parts per billion, one sample, seventeen times more than above the river. These levels are the result of discharges, one against the existing permit as well as from groundwater contamination. I am concerned whether or not this permit gets that groundwater contamination that is an issue in the Chesapeake facility right now. So it's really important, I think, to take a look at this. I think if you leave the coal ash in the ground, you'll have continued coal ash contamination. I know there wasn't going to be a waste permit issued and it said that the Dominion representative talked a lot about the waste permit and I'll end with this statement. Dig it up. Dig it up and move it to a solid waste landfill away from the river and it will never be safe where it is and it will continue to be contamination. Thank you for your time, appreciate it very much.

ROBERT DUNN: Thank you.

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KYLE WINTER: I don't know what the name is, it looks like T. Matteson.

TY MATTESON: Ty Matteson, 4896 Burnham Road, North Chesterfield and I'd like to read a few comments here. The Chesterfield power station looks like titled water, has DEQ considered the effects of sea level rise and more intense storms and because of climate change. Did DEQ consult with the experts on that issue and those needs? Then also, is DEQ aware that excavation is being implemented at coal ash sites around those sites, from North Carolina, from that article it just mentions two. At one place, excavation led to a dramatic drop in groundwater contamination levels. I respectfully request that the coal ash site be excavated and removed to a repository away from the James River. Thank you very much.

KYLE WINTER: Jamie Brunkow.

JAMIE BRUNKOW: Good evening gentlemen. My name is Jamie Brunkow. I serve as the lower James River of the James River Association. The James River Association is a non-profit association with the mission to be a guardian of the James River. We provide a voice for the river and I promote to take action, conservation and responsible stewardship for the natural resources of our region. I appreciate the time and energy that DEQ has put into organizing this opportunity to provide public comment.

This is a quite complex permit that we

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are looking at and I do appreciate also the additional meetings that DEQ has organized to share information with the public. But I think amongst all these new rules that are being applied including the CCR Rule and the ELG Rule and other rules, there are still some tremendous opportunities to improve this permit. We were very involved during the organization of the Bremo permits and we were pleased to see that the triggers that were negotiated through the Bremo settlement are also included in the permit.

Similar to our position for the Bremo permit, we also believe that the Clean Water Act does not require DEQ to use a mixing zone. For the technology to be able to treat the waste to a better standard, DEQ needs to set a higher bar introduced into the mixing zone. In fact, the primary pollutants we're discussing this evening are metals, which can bioaccumulate and can have direct and toxic effects on aquatic life and people at high levels necessitates the use of the best available technology. Dominion has already agreed to incorporate the trigger points in this additional treatment. We believe the permit needs to be updated to reflect these low levels.

We're extremely fortunate to have some remarkable resources in the James River and our region. The Atlantic sturgeon that were listed as an endangered species in 2012, they were essentially extricated from the James River

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basin but in the last decade or so we have worked with a number of partners and petitions in the region to study these creatures and restore habitat and the destruction of the Atlantic sturgeon's spawning, one not far from the Chesterfield power station, just downstream. And we're witnessing a comeback of this remarkable species.

There are several issues that directly affect the sturgeon and also to other aquatic life in Chesterfield. The cooling water, there's very hot water coming out of this plant. The one clear cycle during the DEQ presentation and this is old technology, the variance that allows the discharges of very hot water and I have personally measured it at 98 degrees during the summertime right there at the outflow. The study that permits the discharge of that water is old, thirteen years old and it's time to update that study and take a look at it and recognize we have sturgeon that are recovering in this region and we need to set standards that are protective of the most sensitive species that we have in our watershed.

ROBERT DUNN: Can you wrap it up?

JAMIE BRUNKOW: Absolutely. We also need to look at the 316(b) Rule. We don't think we're equipped to wait five years, limit the number of fish that are killed and trapped against the screen at the water intake and the time to do that is now. I appreciate the time and energy that DEQ has

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put into this. We'll be filing additional technical comments at the end of the comment period and looking forward to working toward improving this permit. Thank you.

ROBERT DUNN: Thank you.

KYLE WINTER: Herb Walke.

HERB WALKE: Hi, my name is Herb Walke and I live in North Chesterfield and I just represent myself. I spoke earlier on the Solid Waste Proposal and I guess the thing I need to say and first of all back in 1967 when I got transferred to Richmond and called out to look at the solid waste on the fly, fly is the terrible stuff that comes out of and was concentrated. I can tell you now all kind of technical things and I spent my career in the technical area. Essentially, we have concentrated that material and we talked about the concentration of the heavy metals and things along that line. Leaving it in an unlined pit and we've got a great deal of runoff coming in there and I think there's probably ways to fix that and I did work in the water treatment industry at one point and there are ways to fix these things but they cost money. There's ways to move this away from the river. When you start to consider the unlined pits and moving those away and I know that's not a part of it but the water that's going to run over that for a while and things you've got to do to dewater that and keep it beside the river just doesn't make a lot of common sense. We can get into it technically and talk about

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that. You've got a great deal of folks in the Richmond area that know how to treat water extremely well. And I think Dominion is doing what they need to do at this point because they've been given rules and we've got to act now. They've known they've had a problem for a long while and there are ways to make this better.

I encourage you to do all you can and tighten the rules you're placing on them. I know it's going to cost a little bit more money and that's going to cost the rate payer.

When you say thirty years out, 1967 was a lot longer than thirty years ago, so it's going to be there for a while and I think you need to think about it. So I think what you've put together at this point is very technical and costs a lot of money but you need to spend a little bit more and take care of this at the process and it's doable. Thank you.

KYLE WINTER: Jonathan Gendzier.

JONATHAN GENDZIER: Good evening, Chairman Dunn and DEQ staff. Thank you for conducting this public hearing. My name is Jonathan Gendzier, I'm a lawyer with the Southern Virginia Environmental Law Center in Charlottesville. My comments tonight are made on behalf of SCLC and our clients, The Virginia Association.

Tonight I'd like to focus on a few related issues. We also plan to submit detailed written

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comments later. First, the new federal effluent limitations the guidelines for DLG for steam electric power generation technology based limits that apply to a number of waste facilities in Chesterfield. The DLGs require that the new technology based limits be established as soon as possible and in no event later than December 21st, 2023, a little less than seven years from now. This draft permit contains limits for certain constituents for several waste streams. But the internal limit is no limit, only monitoring and reporting are required. The compliance schedule of part 1B of the permit requires compliance with the final effluent limitation either within four years of permit reissuance or by March 29, 2023, a date after this permit would expire pending on the waste stream. In fact, the final limits for the ongoing discharges from the coal ash pond before dewatering starts don't apply for four years and the interim limits for barium, selenium, specify no limit. We understand Dominion intends or plans to begin dewatering in about a year from now, effectively meaning no limits would apply for barium and selenium and that discharge.

Second, the permit does set limits for metals like texagon, chromium, arsenic, selenium and barium and the discharge from the coal ash pond during dewatering but these limits are too high. For example, the permit limits for daily maximum level of arsenic is 440 micrograms per liter with a monthly average limit of 240. But the standard for toxicity for

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aquatic life in freshwater is 150 micrograms per liter.

Third, there is no requirement that DEQ use the mixing zone formulating effluent limits and regulations clearly state that the board may use the mixing zone process. Those regulations also say that no mixing zone shall be used or considered as a substitute for minimum treatment technology required by the Clean Water Act. And also that the Board may not approve the mixing zone in violation of the Federal Endangered Species Act. The common thread here is that technology is available to effectively and economically treat the wastewater at the very low levels of these metals and in many cases meeting drinking water standards. Dominion is doing it right now at Possum Point and Bremo and the results are posted online.

In this draft permit, DEQ has either ignored technology based limits or deferred them for four to six years. For those waste streams now covered by the EPA GLD Rule, there is no need to defer final limits this long. And for all the wastewater in Chesterfield, there is no justification for using toxic mixing zones to justify weak permit limits. We respectfully urge DEQ not to give Dominion a free pass to pollute the James River. DEQ must change the draft permit to impose interim and final limits on metals in all waste streams that will take effect on a meaningful timeframe and to impose much stricter permit limits on coal ash dewatering discharges.

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Thank you for the opportunity to make these comments.

ROBERT DUNN: Mr. Winter.

KYLE WINTER: Peter Martin.

PETER MARTIN: I'm speaking on behalf of Hands Across the Lake. I feel that Dominion is in violation because the Hands Across the Lake finding of the above legal limit of arsenic near outfall number four. This violation is also found in Dominion's Risk Assessment Document, permit number VA0004146, dated March 29, 2012. Table 2 shows the monitoring well B-19 with an arsenic level of .008 on April 7, 2010 and monitoring well B-50 at the same level on the same date. Figure 4 map shows water migration directions for the lower pond and section 3.4.1.1 page fourteen speaks to groundwater flow from Old Ash Pond towards wells B-50 and B-51.

All of this data shows groundwater movement. Members of Hands Across the Lake were told at a meeting with Dominion officials the lower pond was eighteen feet deep. The three wells from Table Three show groundwater levels above the pond floor level. B-50 at 4.27 feet, B-19 at 16.21 feet and B-41A at 5.81 feet. These readings were from February 6, 2012. All of this data is verified by the Duke testing that showed arsenic above acceptable EPA levels. This permit should not be renewed in light of these violations.

I just want to comment on what's been said by some other people. Dominion has said if they were to

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dig up the coal ash, they would have to truck it out. They don't have to truck it out because they brought all of that in by rail. It could be railed out and taken to landfills like Amelia. It's the only acceptable thing to do is to dig it up and in light of this violation, I think it really should be dug up. Thank you.

KYLE WINTER: Sofia Melo.

SOFIA MELO: I'm Sofia Melo. I'm representing concerned citizens. And my question is, does it address how the drop levels ---. I was wondering has it gotten to the way of changing the way that we treat drinking water and reducing heavy metals into water and the effect. My next question is, what is the plan beyond the thirty year period of time for DEQ monitoring this, and will the DEQ be monitoring this?

KYLE WINTER: Thank you. Chris Wiegard.

CHRIS WIEGARD: I'm Chris Wiegard. I'm a resident of 13416 Bermuda Place Drive in Chester. Most weekends you can find me jogging the Dutch Gap trail. I'm speaking on behalf of citizens lobby. As a citizen because it's not clear to me all the coal ash is to be in storage. As a volunteer with Citizens Climate Lobby, I'm struck with this discussion on how our financial incentives are on one side of the equation and our good intentions are on the other.

As a public company, Dominion Power

naturally works to maximize shareholder return and minimize costs. It does this in part by externalizing certain costs, which is why we're here tonight. What if we could get money and good intentions on the same side of this equation? We could assess rising carbon fees for coal and natural gas coming out of the ground and give that money back to American families. The economic incentive for fossil fuels would then gradually disappear and the smokestack at Dutch Gap would go silent. Until we push members of our Congress to back this, we will fight battles with pipelines and coal ash ponds and lose some of them. The larger problem, climate change, will continue to grow. Solar power and wind turbine in Virginia will continue to fail to replace fossil fuel.

As a member of the Citizens Climate Lobby, I work as a nonpartisan volunteer to pass carbon fee and dividends in the 2017 Congress and national legislation. If my statement seems to digress from the purposes of this hearing, I apologize but I feel it's important to provide perspective on the continuing carbonation at Dutch Gap and across Virginia. We are treating one symptom here tonight but the patient cannot be cured in this room. Thank you.

TOM PAKURAR: Good evening, I'm Tom Pakurar, and I'm vice president of Hands Across the Lake. The concerns this evening are several-fold. Number one, what's going on today is the discharge of toxic waste into the James

River that's got to stop. The data was published a couple of weeks ago in the Chesterfield Observer and details provided to Mr. Winter yesterday and asked for it. One of the reasons we have this problem deals with the fact that we're dealing with technology that does not apply to fly ash. Fly ash is very light and fluffy whereas stormwater requires particles to settle in ponds and these particles just float on by without settling, so disobeying the law. We don't have any remedies for what happens when technology is not embodied in the law so that's a case for improvement.

The second observation is the risk management and seems to be a lot of boilerplate and doesn't address the real conditions of the most sensitive population using the waters downstream of the coal ash storage. Children of Chesterfield County taking kayak lessons and they're in and out of the kayaks in waist deep water contaminated with this coal ash. The risk analysis doesn't deal with that population or with the possible risk of ingestion of this water and precipitates no concerns.

The third comment deals with the capping in place. The capping place only does water that comes down from the top. What we have is a toxic roux very much like Mr. Winter's coffee analogy. The particles are so small that they will dissolve just like coal through coffee, very micro particle. Same particles that disobey the law will go into

solution and cause the toxic roux and the capping in place doesn't do anything for the water that comes in five times of the containment system. So I would suggest some rethinking but what we need to do with all this and laws need to be updated a little bit to understand whether or not my pocketbook is going to be hit as a taxpayer or as a rate payer for providing electricity or investors.

ROBERT DUNN: Would you wrap it up?

TOM PAKURAR: I'll wrap up very quickly, yes. In summary, there's no greater risk than for us to be content with coal ash being deposited in a hundred year flood plain with just a cap in place. Thank you very much.

KYLE WINTER: Bob Olsen.

BOB OLSEN: My name is Bob Olsen. I'm also a member of Hands Across the Lake. What I present to you tonight for you to take a look at the method of testing you're doing presently for the fly ash to heavy metal is called TCLP, the journal I presented to you was published only last July 2015 called Suitability of Leaching Test Methods for Fly Ash and Slag. The method we're using right now was developed, which is called TCLP and I won't go into all of it, we could spend the next hour. The Toxicity Characteristic Leaching Procedure, TCLP, requires the use of an extraction fluid made of buffered acidic medium and testing. A direct asset digesting method was carried out for the termination of heavy metals and an approved

leaching test method has been suggested for environmental assessment of coal ash representative of actual field conditions. What we need to take a look at and this was a method from 1987 and that's thirty years ago. We need to take a look at the best methods available that we can develop before you renew this permit.

Some of the test methods are called SGLP, synthetic groundwater leaching procedure. You can look at other methods in the document but basically the leaching of heavy metals from dust, fly ash and fly ash have a negative impact on the environment and should be reduced by the leaching assessment of these wastes. The leaching test is one important aspect of the environmental assessment of the remediation metals or measures for the solicitation of stabilization of contaminant settlement.

PH is an important factor and you need to look at the different test methods and choose the best test method. TCLP is the cheapest and I used to work in the industry. My analogy is similar to when I was the Chairman of the Building Code Board of Appeals in Chesterfield for twelve years, citizens were concerned about how their homes were constructed and they would come to our meeting and the builder that constructed their home would say we built the home according to Code and I would ask those citizens, do you understand exactly what was just said. 99.9% of the time they

said no. I said what he just told you was, he did this to the minimum standards allowed by law. Not the median, not the maximum but the minimum standard. TCLP is the minimum standard for testing. We need to find better testing methods and use the best method to ensure we're protecting our citizens. We shouldn't go to the cheapest method at a minimum but we have to do better because the grandchildren will pay the price. Thank you.

KYLE WINTER: Graham Jennings.

GRAHAM JENNINGS: Thank you for the opportunity of speaking. My name is Graham Jennings and I represent myself and I don't have a lot to say that hasn't been said already and much better than I could. But just from a simple standpoint, digging the coal ash up and moving it to a different location is cost effective simply on the fact that the long-term effect and what could arise from leaving it in the ground contaminating the groundwater. Paying to clean it up would be a lot more than if we just moved it away. That's the main point I wanted to make. Also, thank you for the opportunity of being here and I want to thank Dominion for coming out. Thanks.

KYLE WINTER: Emilie Rex.

EMILIE REX: Thanks for having me, my name is Emilie Rex and I'm representing myself and I'm very concerned about the heavy metals level as well as the water, the

temperature of the water contamination.

KYLE WINTER: Tom Burkett.

TOM BURKETT: I'm Tom Burkett with the VRH for Citizens Environmental Rights Militia. As a member of VRH, I'd like to submit this petition to the DEQ signed by more than 1,100 people. The members are David Taylor, Jefferson Reynolds, Cathy McConnell, John Ely, Tuck Williams, Fred Fisher and Leslie Rummage. The petition clearly signifies concern for the well water and Dominion's coal ash and clearly declares that the UR permit is to be put off until Dominion properly conducts sufficient research on residential and commercial water wells concerning the area of Chesterfield County's coal ash pond. The petition demands and requires Virginia and Dominion Power to take the third party professional water testing of residents' drinking water and well water in the immediate area of the coal ash pond. This should be for all power stations and the ones that are stated for coal ash cleanup and caps around them. Following the Duke Energy 2014 Dan River coal ash spill, the state of North Carolina require Duke Energy to take full tests for residential well water testing. The testing found that 93% of residential groundwater wells within 1,000 feet of similar coal ash ponds were contaminated by dangerous chemicals and coal ash. The timeline for coal ash leaching is still undetermined by organic chemists and some professionals predict leaching toxins can become worse in fifty-plus years giving communities

that are left with Dominion's coal ash site environmental problems. Dominion Power is going to move forward with closure plans without a current assessment of the water for these communities. The coal ash ponds should be tested. Virginia residents have a right to know if their water is currently safe to drink and we demand Dominion Power continue the third party testing and monitor the well water in the immediate area of the coal ash ponds to ensure that our water tables and aquifers are protected and safe for consumption in the future.

Furthermore, I'd like to address a more specific concern regarding Dominion Power's Chesterfield power station. During the public information session on June 22nd, Virginia DEQ made it clear that Dominion Power is under preexisting permits and already dewatered the coal ash pond at the Chesterfield Power Plant. The permit we're discussing this evening, I think Virginia Power and the Virginia Department of Environmental Quality wrote the public a full report on the amount of untreated coal ash water that was being discharged in Virginia waterways. If this is the case, I'd like to see Dominion Power be required according to the requirements on the tax permits making all monitor and outfall 004 the lower ash pond in Chesterfield power station public. Virginia Power has been flushing out coal ash water into the James River throughout 004 and this should be clearly understood by the public before further dewatering of the coal ash is permitted. Thank you.

ROBERT DUNN: Anyone else like to make a comment? Seeing none, I would like to

DREW GALLAGHER: I'd like to echo what was said earlier. The problem I have with this permit is that I feel that the mixing zone should be eliminated and then the pollution, particularly the water being released, its impact on the Atlantic sturgeon. It's also come to my attention that NAOAA, North American Oceanic Atmosphere Administration is looking at categorizing the watersheds concerning sturgeon and in the James River that would extend up to Bosher's Dam upriver where this water would be discharged and in the critical sturgeon habitat and I'd like to see the final permit more consideration for sturgeon habitat. Thank you.

KYLE WINTER: Did you sign up on the sheet?

CHRISTINE NATALE: No.

KYLE WINTER: Would you make sure you sign up before you leave?

CHRISTINE NATALE: My name is Christine Natale. I live in Chesterfield County. I don't know all the technical parts of this but from what I can understand and I'm concerned about the temperature of the water along with the aquatic life. In accepting these things and people that use this water, when I consider this permit and I consider the hot water going into the river and I don't think that's very good

and I think that can hurt the ecosystem. I don't know how to quantify the, but we need to keep the sturgeon and we need to quantify a lot of what we have or we don't know about. We can't predict all the losses that could happen and things happen and sometimes we don't know what happens but we need to be very careful of the ecosystem. What we can't quantify, we need to still consider. And then a big thing is to consider our pollution. All this could affect many people and the river needs to stay as clean as possible and maybe a one-time cost would be the way to do it. We certainly have to be concerned with pollution. We have to be worried about this perpetual pollution and we don't want these species, especially the sturgeon, to be eradicated and we don't need to alter the good things about the river. Thank you.

ROBERT DUNN: Thank you. Anyone else? Seeing none, I'd like to thank everyone for attending tonight this hearing. We're really privileged in this country where we do have the freedom to openly address issues like this before the permit is finalized. Again, I'd like to thank you all for coming in and your comments, so thank you very much.

CONCLUSION OF PUBLIC HEARING

CERTIFICATE OF THE COURT REPORTER

I, Medford W. Howard, Registered Professional Reporter and Notary Public for the State of Virginia at large, do hereby certify that I was the court reporter who took down and transcribed the proceedings of the public hearing of the VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY on the VIRGINIA ELECTRIC AND POWER COMPANY VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NUMBER VA0004146; PERMIT REISSUANCE & COAL ASH POND CLOSURE; DOMINION CHESTERFIELD POWER STATION. Hearing held at the Thomas Dale High School West Campus, 3900 West Hundred Road, Chester, Virginia 23831.

I further certify this is a true and accurate transcript, to the best of my ability to hear and understand the proceedings.

Given under my hand this 15th day of July, 2016.

Medford W. Howard

Registered Professional Reporter

Notary Public for the State of Virginia at Large

My Commission Expires: October 31, 2018.

Notary Registration Number: 224566

Bryan, Joseph (DEQ)

From: Kenneth Roller (Services - 6) <kenneth.roller@dom.com>
Sent: Thursday, July 21, 2016 4:47 PM
To: Chesterfield Power Station Water Permit (DEQ)
Cc: Bryan, Joseph (DEQ)
Subject: Dominion Comments on Chesterfield Power Station Draft VPDES Permit
Attachments: Dominion Comments on Draft VPDES Permit VA0004146 July 2016.pdf

Please find attached Dominion's comments on the draft VPDES permit for the Chesterfield Power Station VPDES Permit No. VA0004146.

Ken Roller
Supervisor, Environmental Regulations
Dominion
Generation Environmental Services
(804) 273-3494 Office
(804) 592-7825 Cell

Dominion Resource Services, Inc.
5000 Dominion Boulevard, Glen Allen, VA 23060
dom.com

July 21, 2016

VIA EMAIL

Mr. Joseph Bryan
VPDES Water Permit Writer
DEQ - Piedmont Regional Office
4949-A Cox Road
Glen Allen, Virginia 23060

RE: **Dominion – Chesterfield Power Station**
Comments on Draft VPDES Permit No. VA0004146

Dear Mr. Bryan:

Enclosed are Dominion's comments on the draft VPDES permit for the subject facility. We appreciate the opportunity to provide these comments and look forward to working with you during the remainder of the permitting process.

Should you have any questions or require additional information, please contact Ken Roller at 804-273-3494 or kenneth.roller@dom.com.

Sincerely,

Paula A. Hamel
Director, Generation Environmental Services

Attachments: *Comments on the Draft VPDES Permit for Dominion's Chesterfield Power Station VPDES Permit No. VA0004146 - July, 2016*

Comments on the Draft VPDES Permit for Dominion's Chesterfield Power Station's VPDES Permit No. VA0004146 – July, 2016	
Draft Permit	
Section	**Comment**
I.A.2	This section requires monitoring with effluent limitations for Dissolved Hexavalent Chromium and Total Recoverable Trivalent Chromium. The effluent limits for Hexavalent Chromium are lower than the limits for Trivalent Chromium. Hexavalent Chromium and Trivalent Chromium are components of Total Chromium. Consequently, if the concentration of Total Chromium is less than the effluent limits for Hexavalent Chromium, then it can be assumed with certainty that the concentrations of both Dissolved Hexvalent Chromium and Total Recoverable Trivalent Chromium are less than their respective limits. Consequently, Dominion requests that the following footnote be included in Part I.A.2: Both Chromium III and Chromium VI may be measured by the total chromium analysis. The total chromium analytical test QL shall be less than or equal to the lesser of the Chromium III or Chromium VI method QL listed in Part I.C.14.a. If the result of the total chromium analysis is less than the analytical test QL, both Chromium III and Chromium VI can be reported as "<[QL]", where the actual analytical test QL is substituted for [QL].
I.A.3.d	Replace "Outfall 001" with "Outfall 002"
I.A.6.	Prior to discharge of the Low Volume Wastewater Treatment System (LVWWTS) to Outfall 301, there will likely be a period when the LVWWTS is routed to the lower ash pond. To clarify that the effluent limitations in this section do not become effective during this period, Dominion requests that the words "the LVWWTS" be replaced with "Outfall 301"
I.A.7	Dominion requests that the words "the LVWWTS" be replaced with "Outfall 301". The rationale for this change is the same as that given for I.A.6 above.
I.A.8	Dominion requests that the words "the LVWWTS" be replaced with "Outfall 301". The rationale for this change is the same as that given for I.A.6 above.
I.A.9	To clarify that the limitations in this section become effective following the testing and commissioning of the Coal Pile Runoff Metals Treatment System, Dominion requests that this section be revised as follows: 1. Add the words "Metals Treatment System" after "Coal Pile Runoff" in I.A.9 2. Add a footnote to the I.A.9 table that states that following: "Commencement of discharge does not include testing and commissioning of the Coal Pile Runoff Metals Treatment System. The permittee shall notify DEQ within 72 hours of the operational in-service date (commencement of discharge) of the Coal Pile Runoff Metals Treatment System."
I.A.10	For clarification Dominion suggests that I.A.10.d be rewritten as follows: "See definition of drawdown in Part I.C.24"
I.A.11	Dominion requests that the words "the LVWWTS" be replaced with "Outfall 301" in both I.A.11 and I.A.11.b. The rationale for these changes is the same as that given for I.A.6 above.

Comments on the Draft VPDES Permit for Dominion's Chesterfield Power Station's VPDES Permit No. VA0004146 – July, 2016	
Draft Permit	
Section	**Comment**
I.A.12	Dominion requests that the words "the LVWWTS" be replaced with "Outfall 301" in both I.A.12 and I.A.12.b. The rationale for these changes is the same as that given for I.A.6 above.
I.A.12	The monitoring frequency for pH, TSS, and Oil and Grease is 1/week for the duration of the permit. For all other parameters there are interim and final limits with 1/month and 1/week monitoring frequencies, respectively. Dominion requests that similar interim and final monitoring frequencies be incorporated for pH, TSS and Oil and Grease.
I.C.10.c	This section requires submittal of a sampling protocol for low level PCB monitoring of Outfall 301 within 90 days following reissuance of the permit. Discharge from Outfall 301 is not expected to occur for some time after the permits effective date. Consequently, Dominion requests that this section be reworded as follows: The sampling protocol shall be submitted to DEQ-Piedmont Regional Office for review and approval at least 30 days prior to the first sample collection ~~but no later than 90 days from the effective date of the permit~~.
I.C.14.a	The QL for thallium is extremely low and is difficult to achieve. Attaining such a low QL should not be necessary during the interim monitoring period for Outfall 004 under Part I.A.10. Consequently, Dominion requests that the following sentence be added to the end of this section: The QL for Total Recoverable Thallium does not apply to analyses performed to satisfy the interim monitoring requirements of Part I.A.10.
I.C.17.c	Dominion requests that "Pre-LVWWTS discharge" be changed to "Pre-Outfall 301discharge". The rationale for this change is the same as that given for I.A.6 above.
I.C.17.d	Dominion requests that "the LVWWTS" be replaced with "Outfall 301" in this section. The rationale for this change is the same as that given for I.A.6 above.
I.C.17.g.(1)	The first annual monitoring period should begin October 1, 2016.
I.C.17.g.(2)	Dominion requests that the words "the LVWWTS" be replaced with "Outfall 301" in this section. The rationale for this change is the same as that given for I.A.6 above.
I.C.24	I.C.24. Ash Pond Closure Discharge To clarify that the 72-hour and 24-hour notifications are required prior to, and following, the initiation of the discharge of draw down water, respectively, Dominion requests that this section be reworded as follows: The permittee shall notify the DEQ Piedmont Regional Office at least 72 hours prior to the planned commencement of the discharge of ~~to~~ drawdown ~~the~~ water ~~elevation~~ in the Upper ~~and~~ or Lower Ash Ponds in preparation for pond closure. A second notification to the DEQ Piedmont Regional Office shall be provided within 24 hours after initiating the discharge ~~to~~ of drawdown water from ~~draw down the water elevation in~~ the Upper ~~and~~ or Lower Ash Ponds. Closure

Comments on the Draft VPDES Permit for Dominion's Chesterfield Power Station's VPDES Permit No. VA0004146 – July, 2016	
Draft Permit	
Section	**Comment**
	activities as addressed in this permit shall begin with the commencement of drawdown of the Lower or Upper Ash Ponds, whichever occurs first and conclude with the completion of dewatering. Drawdown shall be defined as the intentional lowering of the pond elevation below 2 feet 2 inches from the top of the concrete outfall structure for Outfall 004 and 15 feet 6 inches from the top of the concrete outfall structure for Outfall 005.
I.C.25	Dominion requests that the words "the LVWWTS" be replaced with "Outfall 301" in this section. The rationale for this change is the same as that given for I.A.6 above.
I.D.5	Dominion requests that the first annual certification be required by February 10, 2018.
Attachment A	Possible typo with Beta-Endosulfan EPA Analysis No. Should be 608/625.

RICHMOND REGIONAL
PLANNING DISTRICT COMMISSION

9211 FOREST HILL AVENUE, SUITE 200
RICHMOND, VIRGINIA 23235
(804) 323-2033

MEMORANDUM

TO: Joseph Bryan
Department of Environmental Quality

FROM: Barbara V. Jacocks, AICP
Director of Planning

DATE: July 22, 2016

SUBJECT: **ENVIRONMENTAL REVIEW AND COMMENT**

Project Title: **Dominion Chesterfield Power Station**

CCN: VA16-0606-3498-015-00-041

The RRPDC received a request for comment concerning this proposal on June 6, 2016. RRPDC staff sent the request to staff of planning district member localities on June 8, 2016 in order to solicit comments to include in a comment letter. Any documents associated with the request were made available to locality staff. Response comments from locality staff were requested on or before close of business July 15, 2016.

RRPDC staff received no comments from locality staffs.

RRPDC staff are very concerned about water quality impacts from the storage of coal combustion residuals to surface water and ground water in Virginia. Recent news reports and studies have indicated that possible negative impacts may be greater than anticipated by DEQ and may require stricter standards. RRPDC staff are specifically concerned that monitoring be adequate to ensure long term protection of water quality and public health.

Signature _____
Barbara V. Jacocks, AICP
Director of Planning

BVJ/dc

Molly Joseph Ward
Secretary of Natural Resources

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration and Finance

David C. Dowling
Deputy Director of Soil and Water Conservation and Dam Safety

Thomas L. Smith
Deputy Director of Operations

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

MEMORANDUM

DATE: July 15, 2016

TO: Joseph Bryan, DEQ-PRO

FROM: Alli Baird, DCR-DNH

SUBJECT: VA0004146, Chesterfield Power Station Draft Reissuance

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

Biotics documents the presence of natural heritage resources within two miles of the project area. However, due to the scope of the activity and the distance to the resources, we do not anticipate that this project will adversely impact these natural heritage resources.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Thank you for the opportunity to comment on this project.

Bryan, Joseph (DEQ)

From: Smith, Mark <Smith.Mark@epa.gov>
Sent: Tuesday, June 28, 2016 11:37 AM
To: Daub, Elleanore (DEQ); Bryan, Joseph (DEQ)
Cc: Trulear, Brian
Subject: FW: VA0004146 - Chesterfield Power Station Draft Reissuance for EPA review (6/28/16)

Hello Elleanore and Joseph. We received the draft permit for the Chesterfield Power Station (VA0004146) on 6/6/16. EPA has exercised its discretion to perform a limited review of the state submitted draft permit for adherence to impaired waters requirements. As a result of that limited review we have no comments concerning the adherence to the impaired waters requirements. Thanks

From: Bryan, Joseph (DEQ) [mailto:Joseph.Bryan@deq.virginia.gov]
Sent: Monday, June 06, 2016 9:44 AM
To: Smith, Mark <Smith.Mark@epa.gov>
Subject: VA0004146 - Chesterfield Power Station Draft Reissuance for EPA review

Dear Mark:

In accordance with the Memorandum of Understanding regarding permit and enforcement programs between the State Water Control Board and the Regional Administrator, Region III, U.S. Environmental Protection Agency, documentation supporting reissuance of the VPDES permit for the Dominion Chesterfield Power Station, VPDES Permit VA0004146 is posted at:

http://www.deq.virginia.gov/fileshare/wps/VA0004146%20Chesterfield%20Power%20Station/EPA%20Review/

The following documents are posted for your review: draft permit and draft fact sheet.

This proposed permit issuance is for a major, industrial facility in the James River Basin located in Chesterfield Count, Virginia.

If EPA does not comment or object within 30 days of receipt of this notification, processing of the referenced permit will be deemed acceptable to the Regional Administrator.

Please let us know if you need additional information to complete your review.

Respectfully,

Joseph B. Bryan
VPDES Water Permit Writer
VA DEQ - Piedmont Regional Office
804.527.5012
joseph.bryan@deq.virginia.gov
www.deq.virginia.gov